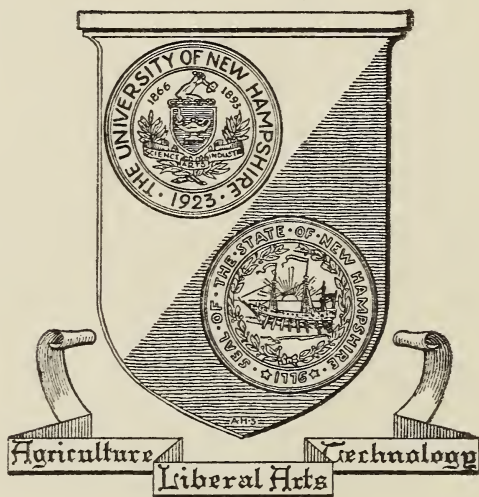


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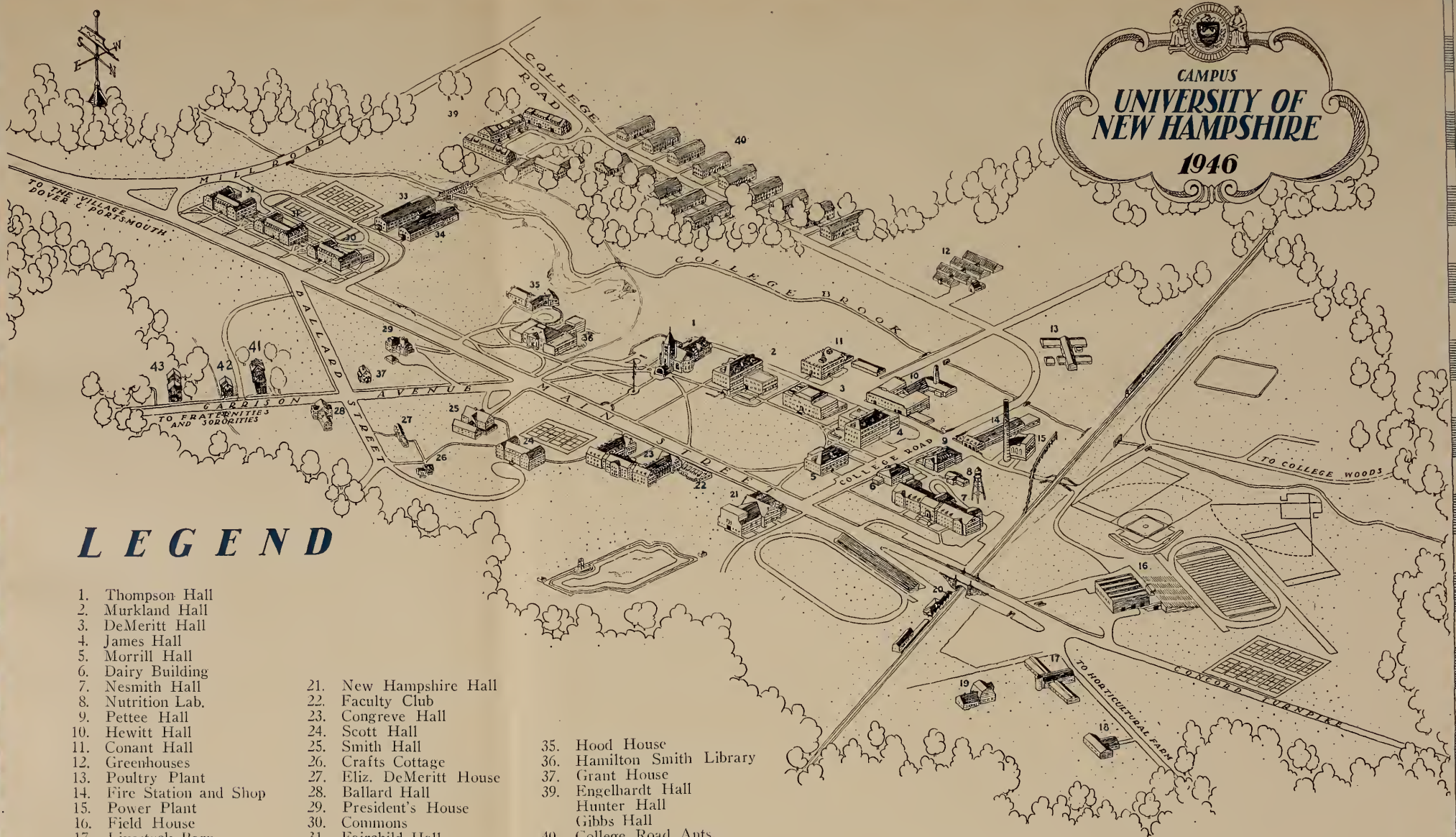
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CAMPUS UNIVERSITY OF NEW HAMPSHIRE

1946

LEGEND

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|---------------------------|--------------------------|----------------------------|
| 1. Thompson Hall | 21. New Hampshire Hall | 35. Hood House |
| 2. Murkland Hall | 22. Faculty Club | 36. Hamilton Smith Library |
| 3. DeMeritt Hall | 23. Congreve Hall | 37. Grant House |
| 4. James Hall | 24. Scott Hall | 39. Engelhardt Hall |
| 5. Morrill Hall | 25. Smith Hall | 40. College Road Apts. |
| 6. Dairy Building | 26. Crafts Cottage | 41. Schofield House |
| 7. Nesmith Hall | 27. Eliz. DeMeritt House | 42. Brook House |
| 8. Nutrition Lab. | 28. Ballard Hall | 43. Luella Pettee House |
| 9. Pettee Hall | 29. President's House | |
| 10. Hewitt Hall | 30. Commons | |
| 11. Conant Hall | 31. Fairchild Hall | |
| 12. Greenhouses | 32. Hetzel Hall | |
| 13. Poultry Plant | 33. East Hall | |
| 14. Fire Station and Shop | 34. West Hall | |
| 15. Power Plant | | |
| 16. Field House | | |
| 17. Livestock Barn | | |
| 18. Commission Barn | | |
| 19. Piggery | | |
| 20. R. R. Station | | |



BULLETIN *of the* UNIVERSITY *of* NEW HAMPSHIRE

Published Semimonthly during the College Year by the University of New Hampshire, Durham, N. H. Entered as second-class matter, August 5, 1907 at the Postoffice at Durham, N. H., under the Act of Congress of July 16, 1894, and of August 12, 1912

THE UNIVERSITY BULLETIN INCLUDES:

The Catalogue Issue of the University

The Report of the President Issue

The Financial Report Issue

The Catalogue Issue of the Summer Session

The Catalogue Issue of the Graduate School

The Catalogue Issue of Educational Films

and other publications of the University of New Hampshire

Correspondence in regard to the University should be addressed to the following:

General Information, General Information

Admission, Catalogue, and Summer Session, Dean of Student Administration.

Alumni Activities, Alumni Office

General Extension, Director of General Extension Service

Graduate School, Dean of the Graduate School

Two-Year Course in Agriculture, Office of Applied Farming

Veterans Education, Postwar Education Service

UNIVERSITY OF NEW HAMPSHIRE CALENDAR

1946-47

1946 SUMMER SESSION

June 29	Saturday	Registration for 12-week summer semester
July 1	Monday	Registration for 6-week summer session Start of 12-week semester classes
July 4	Thursday	Holiday (Classes make up July 6.)
Aug. 9	Friday	6-week summer session closes
Aug. 12	Monday	Second half of 12-week semester starts Veterans refresher course starts
Sept. 21	Saturday	12-week summer semester closes

FIRST SEMESTER, 1946

Sept. 24	Tuesday	Orientation Week begins
Sept. 30	Monday	Registration Day
Oct. 1	Tuesday	Classes begin at 8 A.M.
Nov. 19	Tuesday	Mid-Semester Reports to be filed, 5 P.M.
Nov. 27 to Dec. 2	Wednesday- Monday	Thanksgiving Recess — Wed., 1 P.M. to Mon., 8 A.M.
Dec. 21	Saturday	Christmas Recess begins at 1 P.M.

1947

Jan. 6	Monday	Christmas Recess ends at 8 A.M.
Jan. 31 to Feb. 6	Friday- Thursday	Examination Week
Feb. 7-10	Fri.-Mon.	Winter Carnival, no classes Fri., 1 P.M. to Mon., 8 A.M.

SECOND SEMESTER

Feb. 10	Monday	Classes begin at 8 A.M.
March 11	Tuesday	Town Meeting, classes excused 10 A.M. to 1 P.M.
March 29	Saturday	Spring Recess begins at 1 P.M.
April 1	Tuesday	Mid-Semester Reports to be filed, 5 P.M.
April 7	Monday	Spring Recess ends at 8 A.M.
May 28 to June 4	Wed.-Wed.	Examination Week
May 30	Friday	Memorial Day, a holiday
June 8	Sunday	Baccalaureate Exercises, 10 A.M. Commencement at 2:30 P.M.
June 30	Monday	1947 Summer Session begins

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CALENDAR

1946							1947														1948							
JULY							JANUARY							JULY							JANUARY							
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
	1	2	3	4	5	6	1	2	3	4	1	2	3	4	5	1	2	3	
7	8	9	10	11	12	13	5	6	7	8	9	10	11	6	7	8	9	10	11	12	4	5	6	7	8	9	10	
14	15	16	17	18	19	20	12	13	14	15	16	17	18	13	14	15	16	17	18	19	11	12	13	14	15	16	17	
21	22	23	24	25	26	27	19	20	21	22	23	24	25	20	21	22	23	24	25	26	18	19	20	21	22	23	24	
28	29	30	31	26	27	28	29	30	31	..	27	28	29	30	31	25	26	27	28	29	30	31	
..	
AUGUST							FEBRUARY							AUGUST							FEBRUARY							
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
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4	5	6	7	8	9	10	2	3	4	5	6	7	8	3	4	5	6	7	8	9	8	9	10	11	12	13	14	
11	12	13	14	15	16	17	9	10	11	12	13	14	15	10	11	12	13	14	15	16	15	16	17	18	19	20	21	
18	19	20	21	22	23	24	16	17	18	19	20	21	22	17	18	19	20	21	22	23	22	23	24	25	26	27	28	
25	26	27	28	29	30	31	23	24	25	26	27	28	..	24	25	26	27	28	29	30	29	
..	31	
SEPTEMBER							MARCH							SEPTEMBER							MARCH							
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
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29	30	23	24	25	26	27	28	29	28	29	30	28	29	30	31	
..	30	31	
OCTOBER							APRIL							OCTOBER							APRIL							
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27	28	29	30	31	27	28	29	30	26	27	28	29	30	31	..	25	26	27	28	29	30	..	
..	
NOVEMBER							MAY							NOVEMBER							MAY							
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
..	1	2	1	2	3	1	1	..	
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..	30	30	31	
DECEMBER							JUNE							DECEMBER							JUNE							
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
1	2	3	4	5	6	7	1	2	3	4	5	6	7	..	1	2	3	4	5	6	1	2	3	4	5	
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22	23	24	25	26	27	28	22	23	24	25	26	27	28	21	22	23	24	25	26	27	20	21	22	23	24	25	26	
29	30	31	29	30	28	29	30	31	27	28	29	30	

BOARD OF TRUSTEES

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HARRY D. SAWYER
September 15, 1926 to June 30, 1946
Woodstock, N. H.

FRANK W. RANDALL, B.S., *President*
July 1, 1936 to June 30, 1948
Portsmouth, N. H.

*ERNEST W. CHRISTENSEN, B.S., *Secretary*
July 1, 1940 to June 30, 1948
Dover, N. H.

*MARGARET D. CROGHAN, M.S.
July 1, 1943 to June 30, 1947
Waban, Mass.

JEREMY R. WALDRON, M.S.
April 12, 1944 to June 30, 1946
Portsmouth, N. H.

ARTHUR E. MOREAU, A.M.
September 14, 1944 to June 30, 1947
Manchester, N. H.

LAURENCE F. WHITTEMORE
September 14, 1944 to June 30, 1948
Pembroke, N. H.

MARY S. BROWN
December 20, 1944 to June 30, 1947
Moultonborough, N. H.

AUSTIN I. HUBBARD, B.S.
December 20, 1944 to June 30, 1949
Walpole, N. H.

STANLEY M. BURNS, LL.B.
July 1, 1945 to June 30, 1949
Dover, N. H.

*Elected by Alumni

OFFICERS OF ADMINISTRATION

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WALTER E. BATCHELDER, M.D., *University Physician*

EDWARD Y. BLEWETT, M.A., *Dean of the College of Liberal Arts*

THELMA BRACKETT, A.B., *Librarian*

JOHN BRADFORD DAVIS, JR., B.A., *Assistant to the President*

M. GALE EASTMAN, PH.D., *Dean of the College of Agriculture and
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HARRY M. FITZ, *Superintendent of Properties*

C. FLOYD JACKSON, M.S., *Director of the Biological Institute*

RAYMOND C. MAGRATH, *Treasurer*

WILLIAM A. MEDESY, M.F., *Dean of Men*

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FRANCIS E. ROBINSON, M.A., *University Editor*

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LAUREN E. SEELEY, M.E., *Dean of the College of Technology and Di-
rector of the Engineering Experiment Station*

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ELMER D. WEST, ED.D., *Director of Counseling and Placement*

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ALBERT F. YEAGER, PH.D., *Associate Director of the Biological Institute*

THE UNIVERSITY FACULTY AND STAFFS

STOKE, HAROLD W., *President of the University*

A.B., Marion College, 1924; M.A., University of Southern California, 1925; Ph.D., Johns Hopkins University, 1930. (1944-)

BATCHELDER, LYMAN J., *Instructor Emeritus in Mechanical Engineering, Woodshop*

(1915-)

BAUER, GEORGE N., *Professor Emeritus of Mathematics*

B.S., University of Minnesota, 1894; M.S., University of Iowa, 1898; Ph.D., Columbia University, 1900. (1924-)

BISBEE, HARLAN M., *Associate Professor Emeritus of Education*

A.B., Bowdoin College, 1898; A.M., Harvard University, 1905. (1928-)

MACFARLANE, JAMES, *Instructor Emeritus in Floriculture.* (1915-)

HENDERSON, OREN V., *Registrar Emeritus*

Valparaiso University. (1914-)

RICHARDS, ALFRED E., *Professor Emeritus of English*

A.B., Yale University, 1898; A.M., *ibid.*, 1900; Ph.D., University of Munich, Germany, 1904. (1912-)

RITZMAN, ERNEST G., *Research Professor Emeritus of Animal Husbandry, Agricultural Experiment Station*

B.S.A., Iowa State College, 1903; M.S. (Hon.), University of New Hampshire, 1928. (1915-)

RUDD, HERBERT F., *Professor Emeritus of Philosophy*

A.B., Central College, Iowa, 1900; B.D., University of Chicago, 1903; M.A., *ibid.*, 1913; Ph.D., *ibid.*, 1914. (1922-)

SMITH, LUCINDA P., *Associate Professor Emeritus of English*

A.B., Colby College, 1901; M.A., Boston University, 1934. (1919-)

SMITH, MELVIN M., *Associate Professor Emeritus of Chemistry*

A.B., Colby College, 1890; A.M., *ibid.*, 1893. (1917-)

TAYLOR, FREDERICK W., *Director Emeritus of Agricultural Service Departments of the College of Agriculture*

B.S., Ohio State University, 1900. (1903-)

ABBOTT, HELEN D., *Head Cataloguer*

A.B., Wheaton College, 1929; S.B., Simmons College, 1930; A.M., Middlebury College, 1939. (1943-)

UNIVERSITY OF NEW HAMPSHIRE

- ABELL, MAX F., *Assistant Professor of Agricultural Economics, Assistant Agricultural Economist, Agricultural Experiment Station, and Economist, Extension Service*
B.S., Cornell University, 1914; Ph.D., *ibid.*, 1924. (1926-)
- ADAMS, ELOI A., *Agricultural Agent in Strafford County*
B.S., New Hampshire College, 1918. (1919-)
- AHERN, CORNELIUS J., *Agricultural Agent in Cheshire County*
B.S., University of New Hampshire, 1934. (1936-)
- ALEXANDER NORMAN, *Professor of Government*
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- ALLEN, FRED E., *Assistant Professor of Veterinary Science and Veterinarian, Agricultural Experiment Station*
B.S., University of New Hampshire, 1932; D.V.M., Ohio State University, 1936. (1940-)
- ANDERSON, CHARLOTTE K., *Documents Librarian*
B.A., University of Michigan, 1935; B.A. in L.S., *ibid.*, 1936. (1943-)
- ANDREWS, ERMA L., *Instructor in Biology*
B.A., University of New Hampshire, 1926; M.S., *ibid.*, 1941. (1938-)
- ATKINSON, EDWARD R., *Associate Professor of Chemistry*
B.S., Massachusetts Institute of Technology, 1933; Ph.D., *ibid.*, 1936. (1938-)
- AUERBACH, EUGENE K., *Alumni Secretary and Director of the Bureau of Appointments.*
(1936-November 30, 1945)
- BABCOCK, DONALD C., *Professor of Philosophy*
B.A., University of Minnesota, 1907; M.A., *ibid.*, 1908; S.T.B., Boston University, 1912. (1918-)
- BACHELDER, JOSEPH E., JR., *Associate Professor of Sociology*
B.A., Westminster College, 1933; Ph.D., Yale University, 1937. (1936-)
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B.S., Iowa State College, 1944. (February 20, 1946-)
- BARRACLOUGH, KENNETH E., *Assistant Professor of Forestry and Forester, Extension Service*
B.S., New York State College of Forestry, Syracuse University, 1921; M.F., Harvard University, 1940. (1926-)

THE UNIVERSITY FACULTY

- BARTLEY, CLARA H., *Assistant Professor of Bacteriology*
B.S., Miami University, 1923; M.A., University of Michigan, 1926;
Ph.D., University of Kansas, 1935. (1945-)
- BARTLEY, IRVING D., *Assistant Professor of Music*
B.M., Syracuse University, 1913; M.M., *ibid.*, 1938. (1945-)
- BARTON, PHILIP S., *Associate Professor of Applied Farming*
B.S., University of New Hampshire, 1928; M.Ed., *ibid.*, 1938.
(1939-)
- BATCHELDER, WALTER E., *University Physician*
B.S., University of New Hampshire, 1934; M.D., Boston University
School of Medicine, 1939. (January 1, 1946-)
- BATCHELLER, JOSEPH D., *Assistant Professor of Speech*
A.B., Carnegie Institute of Technology, 1936; A.M., University of
Minnesota, 1938; Ph.D., *ibid.*, 1942. (1944-)
- BATES, JAMES C., *Colonel, Coast Artillery Corps, Professor of Military
Science and Tactics*
- BEANE, DORIS, *University Recorder*
A.B., Smith College, 1919; M.A., Teachers College, Columbia Uni-
versity, 1942. (1923-)
- BECKWITH, MARION C., *Director and Associate Professor of Physical
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A.B., Oberlin College, 1935; M.Ed., University of New Hampshire,
1937. (1935-)
- BEECHER, MYRTIS E., *Home Demonstration Agent in Hillsborough
County*
Graduate, Framingham Normal School, 1919; B.S., Framingham
Teachers College, 1941. (1926-)
- BEGGS, ANN F., *Assistant Professor of Home Economics, and Economist
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Nasson Institute, 1913-1915; University of Chicago, 1927. (1917-)
- BERG, HARRY D., *Assistant Professor of History*
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1936; Ph.D., *ibid.*, 1940. (1940-)
- BERZUNZA, JULIO, *Assistant Professor of Languages*
B.A., University of Oklahoma, 1921; M.A., University of Illinois,
1923. (1928-)
- BESSOM, MARGERY L., *Assistant Professor of Home Economics and
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B.S., Simmons College, 1932; M.A., Teachers College, Columbia
University, 1943. (1943-)

UNIVERSITY OF NEW HAMPSHIRE

BEVAN, LAURENCE A., *Associate Director of the General Extension Service*

B.S., Massachusetts Agricultural College, 1913. (April 1, 1946-)

BINGHAM, SYLVESTER H., *Associate Professor of English*

A.B., Dartmouth College, 1922; A.M., Harvard University, 1929; Ph.D., Yale University, 1937. (1936-)

BLEWETT, EDWARD Y., *Dean of the College of Liberal Arts*

B.A., University of New Hampshire, 1926; M.A., Ohio State University, 1940. (1927-)

BLICKLE, ROBERT L., *Assistant Professor of Entomology and Assistant Entomologist, Agricultural Experiment Station*

B.S., Ohio State University, 1937; M.S., University of New Hampshire, 1939; Ph.D., Ohio State University, 1942. (1938-41, March 14, 1946-)

BLOOD, EDWARD J., *Instructor in Physical Education and Athletics*

B.S., University of New Hampshire, 1935. (1936-On Leave)

BLOOD, PAUL T., *Assistant Professor of Agronomy and Assistant Agronomist, Agricultural Experiment Station*

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BOURNE, ELIZABETH, *Club Agent in Rockingham County*

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BOWEN, IRMA G., *Associate Professor of the Arts*

B.S., University of Rochester, 1925; graduate of Mechanics Institute, Rochester, New York, 1911. (1920-)

BOWLER, EDMOND W., *Professor of Civil Engineering*

S.B. in Sanitary Engineering, Massachusetts Institute of Technology, 1914. (1920-)

BOWLES, ELLA S., *Publications Editor*

Plymouth Normal School, 1905. (1943-)

BOYNTON, C. HILTON, *Assistant Professor of Dairy Husbandry and Dairyman, Extension Service*

B.S., Iowa State College, 1934; M.S., *ibid.*, 1940. (December 10, 1945-)

BRACKETT, THELMA, *Librarian*

A.B., University of California, 1919; Certificate, California State Library, 1920. (1942-)

BRADLEY, ROBERT F., *County Forester in Belknap-Strafford Area*

B.S., University of New Hampshire, 1939. (1944-)

THE UNIVERSITY FACULTY

- BRATTON, KARL H., *Associate Professor of Music*
B.M., University of Kansas; M.A., Teachers College, Columbia University, 1945. (1945-)
- BREON, THEODORE F., *County Forester in Carroll County*
B.S., Pennsylvania State College, 1929. (1942-)
- BRETT, WESLEY F., *Instructor in the Arts*
B.Ed., Keene Teachers College, 1937. (1942-)
- BROWN, EDWARD H., *Instructor in Applied Farming*
B.S., University of Maine, 1920. (August 24, 1945-)
- BROWNE, EVELYN, *Assistant Professor of Physical Education for Women*
A.B., University of California, 1943; M.A., Teachers College, Columbia University, 1943. (1943-)
- CALAHAN, C. LYMAN, *Instructor in Horticulture, Agricultural Experiment Station, and Superintendent of Horticultural Farm*
B.S., Kansas State College, 1937. (1940-41, 1946-)
- CAMPBELL, WILLIS C., *Research Assistant in Industrial Engineering*
B.S., New Hampshire College, 1906. (1943-)
- CARLISLE, DUANE F., *Assistant Professor of Physics*
B.S., University of New Hampshire, 1934; M.A., Wesleyan University, 1936. (1943-)
- CARROLL, HERBERT A., *Professor of Psychology*
A.B., Bates College, 1932; A.M., Brown University, 1928; Ph.D., Columbia University, 1930. (1941-)
- CHAPMAN, DONALD H., *Associate Professor of Geology*
B.A., University of Michigan, 1927; M.A., *ibid.*, 1928; Ph.D., *ibid.*, 1931. (1931-)
- CHARLES, T. BURR, *Professor of Poultry Husbandry, Agricultural Experiment Station*
B.S., Cornell University, 1915; M.S., *ibid.*, 1938. (1928-)
- CLAPP, HENRY S., *Instructor in Horticulture and Assistant Horticulturist, Agricultural Experiment Station and Extension Service*
B.S., Cornell University, 1931; M.S., *ibid.*, 1939. (1931-)
- COLBURN, HAZEL A., *Club Agent in Hillsborough County*
(1935-February 15, 1946)
- COLBY, STANLEY W., *Agricultural Agent in Sullivan County*
B.S., University of New Hampshire, 1934. (1940-)
- COLOVOS, NICHOLAS F., *Assistant Professor of Dairy Husbandry and Associate Animal Nutritionist, Agricultural Experiment Station*
B.S., University of New Hampshire, 1927; M.S., *ibid.*, 1931. (1928-)

UNIVERSITY OF NEW HAMPSHIRE

- CONKLIN, JAMES G., *Associate Professor of Entomology and Associate Entomologist, Agricultural Experiment Station*
B.S., Connecticut Agricultural College, 1926; M.S., University of New Hampshire, 1929; Ph.D., Ohio State University, 1941. (1931-)
- CORBETT, ALAN C., *Assistant Professor of Poultry Husbandry and Assistant Poultry Pathologist, Agricultural Experiment Station*
B.S., University of Maine, 1936; M.S., *ibid.*, 1937; D.V.M., Michigan State College, 1940. (1941-)
- CORTEZ, EDMUND A., *Associate Professor of Speech*
B. A., Taylor University, 1923; B.O., Asbury College, 1924; B.D., Asbury Theological Seminary, 1924; M.A., Columbia University, 1926; Ed.M., Harvard University, 1927. (1927-)
- COULTER, CHARLES W., *Professor of Sociology*
B.A., University of Toronto, 1908; B.D., Victoria College, 1909; M.A., Yale University, 1910; Ph.D., *ibid.*, 1914. (1934-)
- COUSENS, DOROTHY W., *Instructor in Home Economics*
B.S., University of New Hampshire, 1942. (1945-)
- CRECELIUS, H. GILBERT, *Instructor in Bacteriology*
B.A., University of South Dakota, 1934; M.A., *ibid.*, 1937; Ph.D., Yale University, 1941. (1941-Military leave)
- DAGGETT, ALBERT F., *Associate Professor of Chemistry*
B.S., University of New Hampshire, 1928; M.S., *ibid.*, 1930; Ph.D., Columbia University, 1934. (1928-31; 1935-)
- DAGGETT, G. HARRIS, *Assistant Professor of English*
A.B., Cornell University, 1928; M.A., *ibid.*, 1929; Ph.D., University of North Carolina, 1941. (1942-)
- DALY, JOSEPH F., *Lieutenant Colonel, Infantry, Professor of Military Science and Tactics*
Burdett College (1944-46)
- DAVIS, HENRY A., *Instructor in Agricultural and Biological Chemistry and Assistant in Agricultural and Biological Chemistry, Agricultural Experiment Station*
B.S., University of New Hampshire, 1932; M.S., *ibid.*, 1934. (1932-)
- DAVIS, JOHN BRADFORD, JR., *Assistant to the President*
B.A., University of New Hampshire, 1944. (1945-)
- DAVIS, MARION S., *Home Demonstration Agent in Sullivan County*
B.E., Keene Normal School, 1929. (1937-)
- DAVIS, MYRA L., *Instructor in Secretarial Studies*
B.S., Central Missouri State Teachers College, 1939; M.A., State University of Iowa, 1945. (1945-)

THE UNIVERSITY FACULTY

- DAWSON, CHARLES O., *Associate Professor of Civil Engineering*
B.C.E., Ohio State University, 1930; M.S., *ibid.*, 1940. (1930-)
- DEGLER, CARROLL M., *Associate Professor of Economics*
A.B., University of Kansas, 1925; M.B.A., New York University, 1927. (1928-)
- DEMOS, MILTIADES S., *Assistant Professor of Mathematics*
B.S., Robert College, Constantinople, Turkey, 1922; Ph.D., Harvard University, 1926. (1931-)
- DEVENEAU, PHYLLIS, *Editorial Assistant*
B.A., University of New Hampshire, 1943. (1944-)
- DITTMER, DANIEL G., *Instructor in Psychology*
B.A., University of Wisconsin, 1936; M.A., University of California, 1937; Ph.D., University of Wisconsin, 1940. (1946-)
- DOBROVOLNY, CHARLES G., *Associate Professor of Zoölogy*
B.A., University of Montana, 1928; M.S., Kansas State College of Agriculture and Applied Science, 1933; Ph.D., University of Michigan, 1938. (1940-)
- DONOVAN, EDWARD T., *Associate Professor of Mechanical Engineering*
B.S., University of Wisconsin, 1921. (1926-)
- DOUGAL, ANTHONY F., *Assistant Professor of Physical Education and Athletics*
B.S., Temple University, 1933; M.A., Columbia University, 1940. (1939-)
- DOUGHERTY, LAWRENCE A., *Assistant Professor of Agricultural Economics, Assistant Agricultural Economist, Agricultural Experiment Station, and Economist in Marketing, Extension Service*
B.S., Purdue University, 1921. (1930-)
- DRISKO, JEANETTE L., *Assistant Cataloguer*
A.B., Colby College, 1939; B.S., Simmons College, 1940. (1943-)
- DUNN, STUART, *Assistant Professor of Botany and Plant Physiologist, Agricultural Experiment Station*
B.S., University of Minnesota, 1923; M.S., Iowa State College, 1925; Ph.D., University of Minnesota, 1931. (1926-)
- DUNNING, SALLY J., *Instructor in Physical Education for Women*
B.S., Bouve-Boston School of Physical Education, 1946. (March 1-June 30, 1946)
- DUSSAULT, WILLIAM E., *County Forester in Cheshire-Sullivan Area*
B.S., University of New Hampshire, 1937. (November 6, 1945-)
- EASTMAN, M. GALE, *Dean of the College of Agriculture and Director of the Agricultural Experiment Station*
B.S., New Hampshire College, 1913; M.S., Cornell University, 1916; Ph.D., *ibid.*, 1931. (1918-)

UNIVERSITY OF NEW HAMPSHIRE

- EGGERT, RUSSELL L., *Instructor and Research Assistant in Horticulture, Agricultural Experiment Station*
B.S., Michigan State College, 1929; M.S., *ibid.*, 1939. (1942-46)
- ELLIS, ELIZABETH E., *Assistant Professor of Home Economics and Nutritionist, Extension Service*
B.S., Teachers College, Columbia University, 1927; M.A., *ibid.*, 1929. (1929-)
- EPPELSHEIMER, DANIEL S., *Research Professor of Industrial Engineering and Acting Director, Engineering Experiment Station*
(1938-December 31, 1945)
- FENTON, AUSTEN W., *Agricultural Agent in Carroll County*
B.A., University of New Hampshire, 1932. (1942-)
- FITZ, HARRY M., *Superintendent of Properties*
(1921-)
- FOGG, HEMAN C., *Demonstrator, Chemistry Department*
B.S., New Hampshire College, 1918; M.S., *ibid.*, 1920; Ph.D., University of Michigan, 1933. (1918-38, 1943-)
- FOULKROD, GEORGE M., *Associate Professor of Agricultural Engineering, and Agricultural Engineer, Extension Service*
B.S., Pennsylvania State College, 1919; B.S. in Agricultural Engineering, *ibid.*, 1931; M.S. in Agricultural Education, *ibid.*, 1931. (1933-)
- FRENCH, JOHN S., *Instructor in Mathematics*
A.B., Bowdoin College, 1895; Ph.D., Clark University, 1898. (1943-December 31, 1944; December 1, 1945-)
- FULTON, DAWSON G., *Assistant Professor of Mathematics*
B.A., Acadia University, 1929; M.Sc., University of Michigan, 1932; Ph.D., *ibid.*, 1937. (1943-46)
- FUNKHOUSER, JAMES A., *Associate Professor of Chemistry*
B.S., Carnegie Institute of Technology, 1925; Ph.D., Ohio State University, 1930. (1930-)
- GARLAND, MARTHA L., *Home Demonstration Agent in Belknap County*
B.S., University of New Hampshire, 1939. (1941-1943; September 15, 1945-)
- GETCHELL, EDWARD L., *Professor of Mechanical Engineering*
B.S., University of Maine, 1914; E.E., *ibid.*, 1920 (1917-)
- GETTY, F. VERNON, *Instructor in English*
B.A., University of Maryland, 1942; M.A., University of Maryland, 1945. (1946-)
- GIDDINGS, HORACE A., *Associate Professor of Mathematics*
B.S., University of New Hampshire, 1923; Ph.D., Massachusetts Institute of Technology, 1934. (1923-24; 1942-)

THE UNIVERSITY FACULTY

- GILMAN, PAUL A., *Instructor in Applied Farming*
B.S., University of Vermont, 1938. (August 24, 1945-)
- GLASSFORD, JAMES W., *Head Football Coach and Instructor in Physical Education and Athletics*
B.S., University of Pittsburgh, 1937. (April 1, 1946-)
- GOFFE, LEWIS C., *Instructor in English*
B.S., University of New Hampshire, 1935; M.A., *ibid.*, 1946. (1946-)
- GOODWIN, JEANETTE L., *Instructor in Physical Education for Women*
B.S., Boston University, Sargent College of Physical Education, 1944. (1946-)
- GRANT, ROBERT H., *Assistant Professor of English*
A.B., Bowdoin College, 1933; M.A., Columbia University, 1940. (1937-46)
- GRAY, RENA, *Home Demonstration Agent in Belknap County*
(1928-Died October 2, 1945)
- GREEN, ARNOLD W., *Instructor in Sociology*
A.B., Clark University, 1937; M.A., Pennsylvania State College, 1939. (1944-46)
- GRIGAUT, PAUL L., *Associate Professor of Languages*
B. es L., 1926; Certifie de Licence (Sorbonne); Diplome de l'Ecole du Louvre, 1932. (1927-)
- GRILLY, EDWARD D., *Assistant Professor of Chemistry*
B.A., Ohio State University, 1940; Ph.D., *ibid.*, 1944. (January 15, 1946-)
- GRINNELL, HAROLD C., *Associate Professor of Agricultural Economics, Assistant to the Dean, College of Agriculture, and to the Director, Agricultural Experiment Station*
B.S., Cornell University, 1921; M.S., *ibid.*, 1930; Ph.D., *ibid.*, 1941. (1932-)
- GYORGY, ANDREW, *Assistant Professor of Government*
A.B., University of Budapest, 1937; J.D., *ibid.*, 1938; M.A., University of California, 1939; Ph.D., University of California at Los Angeles, 1942. (February 1, 1946-)
- HAENDLER, HELMUT M., *Assistant Professor of Chemistry*
B.S., Northeastern University, 1935; Ph.D., University of Washington, 1940. (1945-)
- HALL, HARRY H., *Assistant Professor of Physics*
B.S., Union College, 1926; Ph.D., Harvard University, 1934. (1940-)
- HALL, MARY A., *Club Agent in Cheshire County*
(1937-October 31, 1945)

UNIVERSITY OF NEW HAMPSHIRE

- HALPERN, LEA H., *Instructor in Ceramics*
Certificate, Kunst, Gernerbe Schule des Oestreich Museum, Vienna, 1923; Ceramic Engineer, Rijkskleiproefstation, Gouda (Holland), (1945-46)
- HARRINGTON, ELEANOR S., *Instructor in Zoölogy*
B.A., University of New Hampshire, 1930; M.S., *ibid.*, 1931. (1930-31; 1933-)
- HARTWELL, WILLIAM H., *Associate Professor of Physics*
B.S., Boston University, 1924; M.A., Wesleyan University, 1927. (1929-)
- HARVEY, ALBERT R., *Instructor in Mathematics*
B.S., Bates College, 1942; A.M., Harvard University, 1946. (1946-)
- HARVEY, LASHLEY G., *Assistant Professor of Government*
A.B., William Jewell College, 1925; A.M., Leland Stanford, Jr., University, 1930; Ph.D., Harvard University, 1942. (1938-)
- HASKELL, CHARLES B., *Instructor in Physics*
A.B., Bowdoin College, 1913. (1944; 1946-)
- HASLERUD, GEORGE M., *Associate Professor of Psychology*
B.A., University of Minnesota, 1930; Ph.D., *ibid.*, 1934. (1945-)
- HÄUSLEIN, JOHN D., *Assistant Professor of Business Administration*
B.A., Yale University, 1916; M.A., *ibid.*, 1920. (1926-)
- HEANEY, HOWELL J., *Reference Librarian*
B.A., Cornell University, 1939; M.A., *ibid.*, 1941; B.S., in L.S., Columbia University, 1942. (1942, March 21, 1946-)
- HENDERSON, RUTH S., *Home Demonstration Agent in Carroll County*
B.S., University of New Hampshire, 1938. (1939-)
- HENNESSY, WILLIAM G., *Professor of English*
A.B., Boston University, 1916; A.M., *ibid.*, 1924. (1923-)
- HEPLER, JESSE R., *Associate Professor of Horticulture and Horticulturist in Home Gardening, Extension Service*
B.S., Pennsylvania State College, 1911; M.S., University of Wisconsin, 1922. (1917-)
- HIGGINS, LEROY J., *Associate Professor of Agronomy and Associate Agronomist, Agricultural Experiment Station*
B.S., University of New Hampshire, 1923. (1927-28; 1929-)
- HILL, KATHERINE E., *Home Demonstration Agent in Coös County*
Farmington Home Economics College, 1934-36; Keene State Teachers College, 1936-38. (1943-46)
- HITCHCOCK, LEON W., *Professor of Electrical Engineering*
B.S., Worcester Polytechnic Institute, 1908. (1910-)

THE UNIVERSITY FACULTY

- HODGDON, ALBION R., *Associate Professor of Botany and Plant Taxonomist, Agricultural Experiment Station*
B.S., University of New Hampshire, 1930; M.S., *ibid.*, 1932; Ph.D., Harvard University, 1936. (1930-32; 1936-)
- HOITT, SAMUEL W., *Assistant to the Director, Extension Service*
B.S., University of New Hampshire, 1930; M.S., *ibid.*, 1931. (1929-)
- HOLDEN, EDWARD W., *Agricultural Agent in Merrimack County*
B.S., University of Maine, 1923. (1923-)
- HOLLEY, WINFRED D., *Assistant Professor of Floriculture and Superintendent of Greenhouses*
(1940-September 15, 1945)
- HOLMES, JOHN C., *Assistant in Research in Agricultural Economics, Agricultural Experiment Station*
A.B., Dartmouth College, 1913; S.B. in Mech. Engr., Massachusetts Institute of Technology, 1915. (1939-)
- HOPKINS, JANET E., *Serials Cataloguer*
A.B., Syracuse University, 1941; B.S. in L.S., *ibid.*, 1942. (1944-46)
- HOWES, HORACE L., *Professor of Physics*
B.S., Syracuse University, 1905; Ph.D., Cornell University, 1915. (1918-)
- HUDDLESTON, ERIC T., *Professor of Architecture*
B.Arch., Cornell University, 1910. (1914-)
- HULL, IRA B., *Assistant Director, Hood House*
B.S., Bates College, 1908; M.D., Harvard Medical School, 1912. (1946-)
- HUMPHREYS, MARY F., *Instructor in Physical Education for Women*
B.S. Tufts College, 1945. (1945-46)
- HUNSBERGER, WARREN S., *Assistant Professor of Economics*
A.B., Yale College, 1933; Ph.D., Yale University, 1937. (1940-On leave)
- HURD, MARIETTE B., *Instructor in English*
A.B., Middlebury College, 1935; M.A., University of New Hampshire, 1937. (December 1, 1945-46)
- IDDLIS, HAROLD A., *Professor of Chemistry*
B.S., Michigan State College, 1918; M.S., University of Iowa, 1921; Ph.D., Columbia University, 1925. (1929-)
- IRETON, SHIRLEY R., *Acting Agent in Sullivan County*
(1944-December 31, 1945)

UNIVERSITY OF NEW HAMPSHIRE

- JACKSON, C. FLOYD, *Director of the Biological Institute and Professor of Zoölogy*
B.A., DePauw University, 1905; M.S., Ohio State University, 1907.
1908-)
- JACKSON, ELLEN E., *Club Agent in Coös County*
B.S., Keene Teachers College, 1941. (1945-)
- JACKSON, FREDERICK D., *Associate Professor of Electrical Engineering and University Radio Engineer*
(1924-Died December 18, 1945)
- JEWETT, IRENE E., *Home Demonstration Agent in Cheshire County*
B.E., Keene Normal School, 1932. (1934-)
- JOHNSON, ARTHUR W., *Professor of Business Administration*
B.B.A., College of Business Administration, Boston University;
M.B.A., *ibid.*, 1929; C.P.A. (1920-)
- JOHNSON, GIBSON R., *Assistant Professor of History*
A.B., Muskingum College, 1916; M.A., Princeton University, 1920;
Ph.D., University of Edinburgh, 1922. (1932-)
- JOHNSON, WILLIAM A., *County Forester in Grafton County*
B.S., University of New Hampshire, 1941. (1941-44; January 2, 1946-)
- JONES, RICHARD C., *Instructor in Biology*
A.B., Dartmouth College, 1938; M.S., University of New Hampshire, 1943; Ph.D., State College of Washington, 1944. (1944-)
- JUDKINS, BEATRICE E., *Home Demonstration Agent in Merrimack County*
B.S., Keene Teachers College, 1937. (August 1, 1945-)
- KALIN, ELWOOD W., *Assistant Professor of Horticulture and Superintendent of Greenhouses*
B.S., Michigan State College, 1939; M.S., Purdue University, 1942.
(December 6, 1945-)
- KARDOS, LOUIS T., *Assistant Professor of Agronomy and Assistant Agronomist, Agricultural Experiment Station*
B.S., Rutgers University, 1932; M.S., *ibid.*, 1934; Ph.D., *ibid.*, 1937.
(1943-)
- KAUPPINEN, TENHO S., *Instructor in Mechanical Engineering*
B.S., University of New Hampshire, 1939. (1939-)
- KEENER, HARRY A., *Associate Professor of Dairy Husbandry and Associate Dairy Husbandryman, Agricultural Experiment Station*
B.S., Pennsylvania State College, 1936; M.S., West Virginia University, 1938; Ph.D., Pennsylvania State College, 1941. (1941-)

THE UNIVERSITY FACULTY

- KELLY, RUTH B., *Instructor in Psychology*
A.B., Radcliffe College, 1933. (1942-)
- KENNEDY, ROBERT C., *Instructor in Applied Farming*
B.V.A., Massachusetts State College, 1940. (1941-42; 1946-)
- KERR, SARA, *State Home Demonstration Leader*
B.S., Teachers College, Columbia University, 1921; M.A., *ibid.*, 1928. (1944-)
- KICHLINE, WILLIAM L., *Assistant Professor of Mathematics*
B.A., Lehigh University, 1924; M.S., *ibid.*, 1928. (1931-)
- KING, ALICE M., *Assistant Home Demonstration Leader, Extension Service*
(1929-38; 1942-February 15, 1946)
- KOCH, WAYNE S., *Assistant Professor of Education*
B.S., Muhlenberg College, 1941; Ed.M., Harvard University, 1945. (1945-)
- LAPERRIERE, BERTRAND M., *Assistant Home Demonstration Agent in Coös County*
B.S., Rivier College, 1944. (1944-)
- LATIMER, L. PHELPS, *Assistant Professor of Horticulture and Assistant Horticulturist, Agricultural Experiment Station*
B.S., University of California, 1921; M.S., *ibid.*, 1922; Ph.D., *ibid.*, 1926. (1926-)
- LEAVITT, HAROLD, *Associate Professor of Physics*
B.S., New Hampshire College, 1921; M.Ed., *ibid.*, 1936; M.A., Columbia University, 1940. (1928-)
- LEVCOWICH, TATIANA, *Instructor in Home Economics*
B.S., Rhode Island State College, 1936; M.S., *ibid.*, 1939. (1942-)
- LEWIS, DANIEL C., JR., *Associate Professor of Mathematics*
A.B., Haverford College, 1926; A.M., Harvard University, 1928; Ph.D., *ibid.*, 1932. (1939-46)
- LINDQUIST, JENNIE D., *Reference Librarian and Consultant in Work with Young People*
(1943-January 31, 1946)
- LITTLEFIELD, RALPH B., *Assistant Professor of Agronomy and Agronomist, Extension Service*
B.S., University of New Hampshire, 1927. (1940-)
- LOOMIS, STUART D., *Instructor in Psychology*
A.B., University of Omaha, 1941. (1945-46)
- LUNDHOLM, CARL, *Director and Professor of Physical Education and Athletics*
B.S., New Hampshire College, 1921; M.A., Columbia University, 1939. (1928-)

UNIVERSITY OF NEW HAMPSHIRE

- MACE, JAMES C., *Associate Professor of Electrical Engineering*
Ph.B., Ripon College, 1929; M.S., University of Illinois, 1934;
Ph.D., *ibid.*, 1940. (1946-)
- MAGRATH, RAYMOND C., *Treasurer*
Burdett College, 1916. (1923-)
- MANN, GUY W., *Club Agent in Strafford County*
B.S., University of New Hampshire, 1933. (May 8, 1946-)
- MANTON, ROBERT W., *Professor of Music*
Harvard University, 1918. (1923-)
- MARKEY, CATHERINE J., *Instructor in Physical Education for Women*
B.S., Boston University, Sargent College of Physical Education,
1946. (1946-)
- MARSTON, PHILIP M., *Associate Professor of History*
B.A., University of New Hampshire, 1924; M.A., *ibid.*, 1927.
1924-)
- MATTHEWS, CHARLES M., *Instructor in Forestry*
B.S., North Carolina State College, 1937. (1946-)
- MCGRAIL, THOMAS H., *Assistant Professor of English*
B.A., University of New Hampshire, 1927; M.A., Cornell University,
1931; Ph.D., *ibid.*, 1936. (1927-46)
- MCINTIRE, PAUL H., JR., *Counselor and Instructor in Psychology*
B.A., University of New Hampshire, 1942; A.M., Boston University,
1945. (1946-)
- McKENZIE, EDITH M., *Instructor in Secretarial Studies*
A.B., Mt. Holyoke College, 1932; M.C.S., Boston University, 1942.
(1942-46)
- McLAUGHLIN, DOROTHY M., *Associate Home Demonstration Agent*
(1944-October 15, 1945)
- McLAUGHLIN, HELEN F., *Professor of Home Economics*
B.A., University of Wisconsin, 1909; B.S., Simmons College, 1915;
M.A., Teachers College, Columbia University, 1925. (1917-)
- MEDESY, WILLIAM A., *Dean of Men*
B.S., Purdue University, 1931; M.F., Yale University, 1933.
(1940-)
- MEYERS, THEODORE R., *Associate Professor of Geology*
B.A., Ohio State University, 1926; M.A., *ibid.*, 1929 (1927-)
- MILLS, MARIAN E., *Assistant Professor of Botany*
B.S., Teachers College, Columbia University, 1917; M.A., *ibid.*,
1920. (1927-)
- MOODY, MARION R., *Assistant in the Arts*
B.S., University of New Hampshire, 1935. (1942-)

THE UNIVERSITY FACULTY

- MOORE, GEORGE M., *Associate Professor of Zoölogy*
A.Sc., University of the City of Toledo, 1926; B.S., Otterbein College, 1928; M.S., University of Michigan, 1932; Ph.D., *ibid.*, 1938. (1944-)
- MOORE, HERBERT C., *Associate Professor of Dairy Husbandry and Assistant Dairy Husbandman, Agricultural Experiment Station*
B.S., Purdue University, 1923; M.S., University of Minnesota, 1925. (1928-)
- MOORE, MARION B., *Club Agent in Merrimack County*
(1938-November 15, 1945)
- MORROW, KENNETH S., *Professor of Dairy Husbandry and Dairy Husbandman, Agricultural Experiment Station*
B.S., University of Minnesota, 1925. (1934-)
- MORSE, WALLACE J., *Research Assistant in Entomology, Agricultural Experiment Station*
B.S., University of New Hampshire, 1943. (1943-)
- MOSS, HERBERT J., *Assistant Professor of Sociology*
A.B., Wesleyan University, 1931; A.M., Harvard University, 1932; Ph.D., *ibid.*, 1938. (1946-)
- MOSS, ROBERT H., *Research Assistant in Industrial Engineering*
B.S., University of New Hampshire, 1943. (1943-)
- MOULTON, VERNA E., *Assistant Professor of Home Economics*
B.S., University of New Hampshire, 1938; M.Ed., *ibid.*, 1940. (1938-)
- NASON, HARRIET B., *Supervising Nurse*
R.N., Wentworth Hospital, Dover, N. H., 1935. (1942-)
- NEEFUS, JR., WENDOVER, *University Photographer and Instructor in Photography*
A.B., Dartmouth College, 1942. (May 1, 1946-)
- NULSEN, WILLIAM B., *Associate Professor of Electrical Engineering*
B.S., California Institute of Technology, 1918; M.S., University of New Hampshire, 1930. (1926-)
- NYE, EDWIN P., *Instructor in Mechanical Engineering*
B.S., University of New Hampshire, 1941. (1942-1944; February 18,—June 30, 1946)
- O'BRIEN, DANIEL A., *Agricultural Agent in Coös County*
Cornell University, 1913. (1920-)
- O'CONNELL, ELIAS M., *Instructor in Mechanical Engineering, Forge and Welding Shop*
Graduate, Wentworth Institute, course in forging, hardening and tempering, 1923; Graduate, two-year course in pattern making, *ibid.*, 1925. (1926-)

UNIVERSITY OF NEW HAMPSHIRE

- O'KANE, WALTER C., *Professor of Economic Entomology and Entomologist, Agricultural Experiment Station*
B.A., Ohio State University, 1897; M.A., *ibid.*, 1909; D.Sc. (hon.) *ibid.*, 1932. (1909-)
- OLNEY, AUSTIN L., *Specialist in Audio-Visual Education and Assistant Professor of Education*
B.S., Central Michigan College of Education; M.Ed., University of Vermont, 1946. (June 10, 1946-)
- OLSON, MARGARET L., *Instructor in Music*
B.M., New England Conservatory of Music, 1943; M.Ed., University of New Hampshire, 1945. (1943-)
- OLSSON, GUNNAR, *District County Agent in Dairying, Coöps and Grafton Counties*
B.A., New Hampshire College, 1922. (1944-)
- ONGLEY, PHYLLIS, *Instructor in Physical Education for Women*
B.S., Sargent College of Physical Education, Boston University, 1944. (1944-)
- OWEN, MARGARET, *Order Librarian*
B.A., Mount Holyoke College, 1919. (1943-)
- PARKER, CLIFFORD S., *Professor of Languages*
A.B., Harvard University, 1912; A.M., *ibid.*, 1914; Ph.D., Columbia University, 1925. (1931-)
- PARTRIDGE, ALLAN B., *Assistant Professor of History*
A.B., Clark University, 1922; A.M., *ibid.*, 1923. (1925-)
- PATTON, WILLARD G., *Club Agent in Cheshire County*
B.S., Massachusetts State College, 1939. (November 15, 1945-)
- PERCIVAL, GORDON P., *Assistant Professor of Agricultural and Biological Chemistry and Assistant Chemist, Agricultural Experiment Station*
B.S., Massachusetts Agricultural College, 1924; M.S., *ibid.*, 1926. (1926-)
- PERKINS, DONALD M., *Assistant Professor of Mathematics*
B.S., University of New Hampshire, 1931; M.S., *ibid.*, 1933. (1931-)
- PERKINS, VINCENT A., *Club Agent in Sullivan County*
B.S., University of New Hampshire, 1916. (February 1, 1946-)
- PERRETON, ARNOLD, *Assistant Professor of Architecture*
(1928-February 1, 1946)
- PHILLIPS, THOMAS G., *Professor of Agricultural and Biological Chemistry and Chemist, Agricultural Experiment Station*
B.S., Ohio State University, 1912; M.S., *ibid.*, 1913; Ph.D., University of Chicago, 1918. (1925-)

THE UNIVERSITY FACULTY

- PHIPPS, ROBERT H. K., *County Forester in Coös County*
B.S., University of New Hampshire, 1931. (1942-)
- PIERCE, EVERETT W., *Agricultural Agent in Hillsborough County*
B.S., Cornell University, 1923. (1923-)
- PIPER, HELEN D., *Club Agent in Strafford County*
B.S., University of Maine, 1943. (September 14, 1945-March 14, 1946)
- PLATTS, FRANCES E., *Associate Home Demonstration Agent in Rockingham County*
B.S., University of New Hampshire, 1933; M.Ed., *ibid.*, 1941. (November 1, 1945-)
- PRINCE, FORD S., *Professor of Agronomy and Agronomist, Agricultural Experiment Station*
B.S., University of Illinois, 1913. (1925-)
- PRINCE, RALPH N., *Textile Research Fellow, Engineering Experiment Station*
(1943-July 31, 1945)
- PRINCE, WILLIAM L., *University Alumni Secretary*
B.A., University of New Hampshire, 1930. (February 6, 1945-)
- PURINGTON, JAMES A., *Agricultural Agent in Rockingham County*
B.S., New Hampshire College, 1916; M.S., Massachusetts Agricultural College, 1920. (1920-)
- PURINTON, HELEN J., *Assistant Professor of Agricultural and Biological Chemistry and Assistant Chemist, Agricultural Experiment Station*
B.S., University of Miami, 1937; M.S., Pennsylvania State College, 1940; Ph.D., Purdue University, 1943. (1943-)
- RABETHGE, PRISCILLA, *Specialist in Recreation and Instructor in Physical Education for Women*
A.B., Boston University, 1939. (1944-)
- RAWLINGS, CECIL O., *Assistant Professor of Horticulture and Horticulturist, Extension Service*
B.S., University of Illinois, 1925. (1930-)
- REHMEYER, MARY G., *Instructor in Music*
A.B., Western Maryland College, 1944; M.A., Eastman School of Music, 1945. (1945-46)
- RETTIG, HAZEL W., *Instructor in Physical Education for Women*
(1944-January 31, 1946)
- REYNOLDS, GEORGE E., *Instructor in Music*
M.B., Southwestern College, 1942; M.M., Cincinnati Conservatory of Music, 1946. (1946-)
- RICE, UNA A., *Home Demonstration Agent in Grafton County*
B.S., Teachers College, Columbia University, 1927; A.M., *ibid.*, 1942. (1929-)

UNIVERSITY OF NEW HAMPSHIRE

- RICH, WAYNE S., *Club Agent in Merrimack County*
B.S., University of Maine, 1934. (February 15, 1946-)
- RICHARDS, MATHIAS C., *Assistant Professor of Botany and Plant Pathologist, Agricultural Experiment Station*
B.S., Utah State Agricultural College, 1932; Ph.D., Cornell University, 1938. (1941-)
- RICHARDSON, EDYTHE T., *Assistant Professor of Zoölogy*
B.S., New Hampshire College, 1922; M.S., University of New Hampshire, 1924. (1922-)
- RICHARDSON, JOHN C., *Instructor in English*
A.B., Dartmouth College, 1941; M.A., Columbia University, 1942. (1946-)
- RIDEOUT, JOHN G., *Assistant Professor of English*
B.A., Colby College, 1946; B.A., M.A., Oxford University, 1939; Ph.D., Brown University, 1942. (1946-)
- RINGROSE, RICHARD C., *Assistant Professor of Poultry Husbandry and Assistant Poultry Husbandman, Agricultural Experiment Station*
B.S., Cornell University, 1932; Ph.D., *ibid.*, 1936. (1942-)
- ROBINSON, EARL P., *County Agent Leader in the Extension Service*
(1919-December 31, 1945)
- ROBINSON, FRANCIS E., *University Editor*
B.A., University of New Hampshire, 1931; M.A., *ibid.*, 1933. (1944-)
- ROLLINS, CALVIN D., *Instructor in English*
A.B., University of Nebraska, 1941. (February 1-June 30, 1946)
- ROPER, ELIZABETH R., *Club Agent in Carroll County*
B.A., University of New Hampshire, 1928. (1928-)
- SACKETT, EVERETT B., *Dean of Student Administration*
B.A., Hamline University, 1923; M.A., University of Minnesota, 1925; Ph.D., Columbia University, 1931. (1938-)
- SACKETT, MARTHA R., *Instructor in Photography*
B.A., University of Minnesota, 1923; Clarence H. White School of Photography, 1936-1937. (1942-46)
- SANBORN, MARY L., *Assistant State Club Leader, Extension Service*
Oread Institute, Worcester, 1904. (1915-)
- SAUER, GEORGE H., *Assistant Professor of Physical Education and Athletics*
(1937-January 31, 1946)
- SCHAEFER, PAUL E., *Assistant Professor of Zoölogy and Assistant to the Dean, College of Liberal Arts*
A.B., Bethany College, 1926; M.S., Ohio State University, 1931; Ph.D., *ibid.*, 1936. (1941-)

THE UNIVERSITY FACULTY

- SCHEIER, EDWIN, *Instructor in Pottery*
Art-Students League, 1928-30; New York School of Industrial Art,
1929-31. (1940-)
- SCHOOLCRAFT, JAMES T., *Assistant Professor of Languages*
B.S., Union College, 1923; Abgangs-Zeugnis, Heidelberg University,
1924; A.M., Columbia University, 1926. (1936-)
- SCHULTZ, JOHN H., *Assistant Professor of English*
B.A., University of Texas, 1933; M.A., *ibid.* 1934; M.A., Harvard
University, 1939; Ph.D., *ibid.*, 1940. (1946-)
- SCUDDER, HAROLD H., *Professor of English*
B.S., Dartmouth College, 1903. (1913-)
- SEELEY, LAUREN E., *Dean of the College of Technology, Director of
the Engineering Experiment Station, and Professor of Mechanical
Engineering*
Ph.B., Yale University, 1921; M.E., *ibid.*, 1924; LL.B., *ibid.*, 1935.
(1945-)
- SEIBERLICH, JOSEPH, *Research Assistant Professor of Industrial En-
gineering*
Diplom Ingenieur, Technical University, Karlsruhe, Germany, 1924;
Doctor Ingenieur, *ibid.*, 1928. (1941-)
- SEWELL, CHARLES A., *Instructor in Mathematics*
B.S., University of New Hampshire, 1929; M.S., *ibid.*, 1932.
(1946-)
- SHIMER, STANLEY R., *Associate Professor of Agricultural and Biological
Chemistry and Assistant Chemist, Agricultural Experiment Station*
B.S., Muhlenberg College, 1918; M.S., Pennsylvania State College,
1923. (1924-)
- SKARET, JOHN O., *Sergeant, Assistant in Military Science and Tactics*
B.A., Luther College, 1933. (June 1943-December 30, 1944)
- SKELTON, RUSSELL R., *Associate Professor of Civil Engineering*
B.S. in Civil Engineering, Purdue University, 1923; C.E., *ibid.*, 1934;
S.M. in Engineering, Harvard University, 1939. (1928-)
- SLANETZ, LAWRENCE W., *Associate Professor of Bacteriology and
Bacteriologist, Agricultural Experiment Station*
B.S., Connecticut State College, 1929; Ph.D., Yale University, 1932.
(1932-)
- SLOAN, ROGER P., *County Forester in Rockingham County*
B.S., University of New Hampshire, 1942. (January 2, 1946-)
- SLOBIN, HERMON L., *Dean of the Graduate School and Professor of
Mathematics*
A.B., Clark University, 1905; Ph.D., *ibid.*, 1908. (1919-)
- SMITH, GRACE H., *Home Demonstration Agent in Strafford County*
B.S., Cornell University, 1921. (1933-46)

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- SMITH, HARRY W., *Professor of Economics*
A.B., Hamilton College, 1908; A.M., *ibid.*, 1912; A.M., Columbia University, 1920. (1920-46)
- SMITH, ROYAL W., *Agricultural Agent in Belknap County*
B.S., University of New Hampshire, 1928. (1928-)
- SMITH, SHIRLEY J., *Home Demonstration Agent in Strafford County*
B.S., State Teachers College, Framingham, Mass., 1939; M.S., Cornell University, 1944. (November 1, 1945-)
- SMITH, TODD O., *Assistant Professor of Agricultural and Biological Chemistry and Associate Chemist, Agricultural Experiment Station*
A.B., Indiana University, 1910; M.S., New Hampshire College, 1917. (1910-)
- SMITH, WILLIAM W., *Assistant Professor of Horticulture, Assistant Horticulturist, Agricultural Experiment Station, and District County Agent, Extension Service*
B.S., University of New Hampshire, 1924; M.S., *ibid.*, 1929; Ph.D., Michigan State College, 1935. (1936-)
- SOLT, MARVIN R., *Associate Professor of Mathematics*
B.S., Lehigh University, 1918; M.S., *ibid.*, 1925. (1926-)
- SQUIBB, MARGARET, *Assistant Club Agent in Merrimack County*
(1943-October 31, 1945)
- STARKE, RAYMOND R., *Professor of Hotel Administration*
A.B., Boston University, 1921; A.M., Harvard University, 1926. 1921-24; 1926-)
- STEVENS, CLARK L., *Professor of Forestry and Forester, Agricultural Experiment Station*
B.S., New Hampshire College, 1917; M.F., Yale University, 1926; Ph.D., *ibid.*, 1930. (1919-)
- STEVENS, HENRY B., *Director of the General Extension Service*
A.B., Dartmouth College, 1912. (1918-)
- STEWART, GLENN W., *Assistant Professor of Geology*
B.S., University of New Hampshire, 1935; M.S., Syracuse University, 1937. (1938-39; 1941-)
- STIMSON, RUTH G., *Home Demonstration Agent in Rockingham County*
B.S., University of New Hampshire, 1940; M.Ed., *ibid.*, 1944; (1942-)
- STOLWORTHY, E. HOWARD, *Associate Professor of Mechanical Engineering*
B.S., Tufts College, 1922. (1922-)
- STOWE, A. MONROE, *Professor of Education*
Ph.B., Northwestern University, 1903; A.M., *ibid.*, 1904; A.M., Harvard University, 1905; Ph.D., Columbia University, 1909. (1934-)

THE UNIVERSITY FACULTY

- SWAIN, LEWIS C., *Assistant Professor of Forestry*
B.S., New Hampshire College, 1918; M.F., Harvard University, 1939. (1927-)
- SWANSON, C. LOYAL W., *Assistant Professor of Agronomy and Soil Survey Assistant, Agricultural Experiment Station*
B.A., Coe College, 1933; M.S., Iowa State College, 1938; Ph.D., *ibid.*, 1941. (1941-Military leave)
- SWASEY, HENRY C., *Associate Professor of Physical Education and Athletics*
B.S., Amherst College, 1915; M.S., Indiana University, 1941. (1921-)
- SWEET, PAUL C., *Associate Professor of Physical Education and Athletics*
B.S., University of Illinois, 1923; M.A., University of Southern California, 1941. (1924-)
- TEERI, ARTHUR E., *Assistant Professor of Agricultural and Biological Chemistry and Assistant Chemist, Agricultural Experiment Station*
B.S., University of New Hampshire, 1937; M.S., *ibid.*, 1940; Ph.D., Rutgers University, 1943. (1938-40, 1943-)
- TELLER, GERTRUDE E., *Instructor in Languages*
Ph.D., University of Vienna, 1928; M.A., New York University, 1945. (1945-)
- TEMPLE, EDWARD H., *Instructor in Mechanical Engineering*
B.S., Boston University, 1928; M.Ed., *ibid.*, 1934. (February 18, 1946-)
- THOMAS, GEORGE R., *Associate Professor of the Arts*
B.Arch., Carnegie Institute of Technology, 1930. (1930-)
- THOMPSON, WILBUR E., *County Forester in Merrimack-Hillsborough Area*
B.S., University of New Hampshire, 1927. (November 1, 1945-)
- TIRRELL, LORING V., *Professor of Animal Husbandry*
B.S., Massachusetts Agricultural College, 1920. (1921-25; 1930-)
- TONKIN, JOHN C., *Instructor in Mechanical Engineering, Machine Shop*
(1910-12; 1924-)
- TORGESSEN, JOHN L., *Assistant Professor of Chemistry*
B.S., University of Idaho, 1935; M.S., *ibid.*, 1937; Ph.D., Columbia University, 1942. (1941-)
- TOWLE, CARROLL S., *Associate Professor of English*
A.B., Bowdoin College, 1922; Ph.D., Yale University, 1933. (1931-)
- TOWLE, DOROTHY S., *Assistant Extension Editor*
B.A., University of Texas, 1926; A.M., Yale University, 1928. (1944-)

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- TRITT, CHARLES W., *Instructor in Music*
B.M., DePauw University, 1938; M.Ed., University of New Hampshire, 1942. (1940-46)
- TUXBURY, FRANCIS V., *Acting Club Agent in Grafton County*
Albany Business College, 1908-09. (1944-)
- TYRRELL, DORIS E., *Associate Professor of Secretarial Studies*
B.S., University of Minnesota, 1926; M.A., *ibid.*, 1932. (1938-)
- WADLEIGH, CLARENCE B., *State Club Leader, Extension Service*
B.S., New Hampshire College, 1918. (1918-19; 1920-)
- WALSH, JOHN S., *Associate Professor of Languages*
A.B., Harvard University, 1915; M.A., Boston University, 1928. (1922-)
- WARREN, RICHARD, *Assistant Professor of Poultry Husbandry and Extension Poultryman*
B.S., Cornell University, 1934; M.S., *ibid.*, 1935. (1944-)
- WATSON, JEANETTE D., *Instructor in Physical Education for Women*
B.S., Skidmore College, 1943. (1945-)
- WEBBER, LAURANCE E., *Research Assistant Professor of Industrial Engineering*
B.S., University of New Hampshire, 1934; M.E., *ibid.*, 1940. 1937-)
- WEBSTER, ROBERT G., *Assistant Professor of English*
B.A., University of New Hampshire, 1926; M.A., *ibid.*, 1930. (1927-)
- WELCH, ALBERT G., *Research Assistant in Industrial Engineering*
B.S., University of New Hampshire, 1936; M.S., *ibid.*, 1941. (1937-40; 1946-)
- WENTWORTH, ROBERT L., *Assistant Club Agent in Hillsborough County*
(March 5-November 23, 1945)
- WEST, ELMER D., *Director of Counseling and Placement and Associate Professor of Psychology*
A.B., Ohio University, 1930; Ed.M., Harvard University, 1934; Ed.D., *ibid.*, 1935. (April 1, 1946-)
- WESTON, MARION P., *Assistant Club Agent in Rockingham County*
(1944-November 23, 1945)
- WESTON, RUTH C., *Club Agent in Belknap County*
B.A., New Hampshire College, 1921. (1929-)
- WHELAN, PHILIP M., *Staff Sergeant, U.S.A., Assistant in Military Science and Tactics*
(1942-)

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- WHIPPEN, NORMAN F., *Supervisor, Farm Labor Program*
(1920-23; 1928-December 31, 1945)
- WHITE, DOROTHY M., *Associate Club Agent in Merrimack County*
B.S., University of New Hampshire, 1940. (January 1, 1946-)
- WILKINS, DORIS F., *Instructor in the Arts*
O.T.R., Boston School of Occupational Therapy, 1923. (1944-)
- WILLIAMSON, JAMES, *Extension Specialist in Industrial Management and Associate Professor of Industrial Management*
B.S., Manchester Institute of Technology, 1911. (1946-)
- WILSON, W. ROSS, *Agricultural Agent in Grafton County*
B.S., Cornell University, 1912. (1912-)
- WOODRUFF, RUTH J., *Dean of Women and Associate Professor of Economics*
A.B., Bryn Mawr, 1919; A.M., *ibid.*, 1920; Ph. D., Radcliffe, 1931. (1931-)
- WOODWORTH, HARRY C., *Professor of Agricultural Economics, Agricultural Economist, Agricultural Experiment Station, and Economist, Planning, Extension Service*
B.S., University of Illinois, 1909; M.S., Cornell University, 1916. (1921-)
- WOOSTER, CAROLINE S., *Assistant Professor of Physical Education for Women*
Sargent School for Physical Education, 1926; B.S., University of New Hampshire, 1934. (1932-35, 1939-40, 1942-)
- YALE, WILLIAM, *Associate Professor of History*
Ph.B., Sheffield Scientific School, Yale University, 1910; M.A., University of New Hampshire, 1928. (1928-)
- YEAGER, ALBERT F., *Professor of Horticulture, Horticulturist, Agricultural Experiment Station, and Associate Director of the Biological Institute*
B.S., Kansas State College, 1912; M.S., Oregon Agricultural College, 1916; Ph.D., Iowa State College, 1936. (1939-)
- ZIMMERMAN, OSWALD T., *Professor of Chemical Engineering*
B.S.E. (Ch.E.), University of Michigan, 1929; M.S.E., *ibid.*, 1931; Ph.D., *ibid.*, 1934. (1938-)

MAJOR ADMINISTRATIVE ASSISTANTS

WALTER B. ADAMS, *Manager of University Bookstore*

THERESA R. BATCHELDER, *Mail Clerk*

GLADYS H. BLAISDELL, *Assistant to the Treasurer*

MAISIE C. BURPEE, *Secretary to the Dean, College of Agriculture, and
the Director, College of Agriculture and Agricultural Experiment
Station*

LILLIAN F. CURTIS, *Secretary to the President*

WILLIAM M. DELBROUCK, *Manager, Printing and Duplicating Service*

MILDRED M. FLANDERS, *Secretary to the Dean of the College of
Technology*

CORA F. FRENCH, *Secretary to the Director of the Extension Service*

DOROTHY S. HANSON, *Secretary to the Dean, College of Liberal Arts*

ADDIE MAY HOLMES, *Secretary to the Treasurer*

ALBERT D. LITTLEHALE, *Herdsman, Agricultural Experiment Station*

BEATRICE M. RICHMOND, *Cashier, Business Office*

BETTY G. SANBORN, *Seed Analyst*

RUSSELL C. SMITH, B.A., *Purchasing Assistant*

SARAH C. THAMES, B.S., M.A., *Manager and Dietitian, University
Dining Hall*

HOUSE DIRECTORS

INEZ P. ADAMS, *Gibbs Hall*

LULIA T. ANDREWS, *Schofield House*

LOUISE M. COBB, *Engelhardt Hall*

ARLINE B. DAME, *Hetzel Hall*

ESTHER M. DUNNING, *Congreve Hall*

AMERICA L. DURRANCE, L.I., *Hunter Hall*

MINNA B. HYDE, B.A., *Fairchild Hall*

ALIDA H. PEARL, *Smith Hall*

LUCILLE E. PELLETT, *Scott Hall*

MARCIA N. SANDERS, *House Director Emeritus*

SUZANNE SICKMON, *Assistant to House Director, Congreve Hall*

MARGARET D. WALLACE, *East-West Halls*

UNIVERSITY *of* NEW HAMPSHIRE



HISTORY

The educational institution, now known as the University of New Hampshire, was established as a college in 1866. At that time, the State of New Hampshire accepted the provisions of the Federal Morrill Act and established the New Hampshire College of Agriculture and Mechanic arts.

This national legislation, which had been approved by President Lincoln in 1862, provided for an allotment of public lands to each state for instituting such a college. In place of land New Hampshire accepted scrip and, selling this for \$80,000, founded the College at Hanover in conjunction with Dartmouth College. For a quarter of a century the institution remained a branch of Dartmouth with an average enrollment of about 25 students. In 1888, through the Federal Hatch Act, a State Agricultural Experiment Station was also established as a part of the College.

Meanwhile, there lay in a legal adviser's safe in Durham the will, made in 1856, of a farmer, Benjamin Thompson, bequeathing his entire estate to the people of New Hampshire on condition that the State establish on his land a College of Agriculture. No one had known of his proposed philanthropy. The Thompson estate then amounted in land and securities to \$300,000, but this was to lie untouched, at compound interest, for a period of 20 years. When, at last, in 1912, it first became available, it amounted to approximately \$800,000.

When the terms of the will became known, in 1890, the Legislature promptly made the necessary enactments to establish the College at Durham. The enthusiastic Senior Class of 1892 journeyed down from

UNIVERSITY OF NEW HAMPSHIRE

Hanover to hold its Commencement Exercises in the College's first new building—a cow barn. As rapidly as possible, the State erected four other buildings, Thompson Hall, Conant Hall, Nesmith Hall, and the College Shops, which were ready for occupancy in 1893 by a group of 64 students, including 10 women.

In 1911, the Trustees authorized the setting up of an Agricultural Extension Service which was further developed later by Federal and State appropriations to make possible headquarters with County Agricultural Extension Agents in each county of the State.

By 1914, constant expansion of the student body resulted in an administrative division of the College into three groups: Agriculture, Engineering, and Arts and Sciences.

Moved by a devoted alumni body and the more than 1,000 students then enrolled, the Legislature, in 1923, renamed the College the University of New Hampshire, creating within it the three Colleges of Agriculture, Technology, and Liberal Arts. Two years later, it permanently provided for the University's support by granting it an annual income of one mill for each dollar of the assessed valuation of all taxable property in the State.

Today, the University comprises the three Colleges, the Agricultural and Engineering Experiment Stations, the General Extension Service, the Summer School, the Graduate School, and the Forestry Summer Camp in the White Mountains.

ORGANIZATION

The government of the University of New Hampshire is vested in a Board of Trustees, thirteen in number, of which the Governor of the State, the Commissioner of Agriculture, and the President of the University are members *ex officio*. Two members, one of whom must be a resident of New Hampshire, are elected by the Alumni of the University, and eight members are appointed by the Governor.

The University Senate, a representative body elected by and from the Faculty, has legislative jurisdiction in matters of student government and educational policy. Within the Senate is the University Council which acts in an advisory capacity to the President and serves as an Executive Committee between meetings of the Senate. Details of the University organization are given in the current Faculty Handbook.

INSTRUCTION

RESIDENT INSTRUCTION is offered in the College of Agriculture, the College of Technology, the College of Liberal Arts, the Graduate School, the Department of Physical Education, and the Department of Military Science and Tactics.

INSTRUCTION

THE SUMMER SCHOOL has been, since 1922, an integral part of the University program. Prior to that time, 1894 to 1897, a Summer School in Biology had been conducted. Courses are offered in the Summer School by the three Colleges and the Graduate School to meet the needs of teachers, administrators, and supervisors of elementary and secondary schools; students seeking special professional preparation or working for undergraduate or graduate degrees; students anticipating courses or supplying deficiencies; qualified and mature persons who wish courses for general cultural purposes. Qualified teachers in method and subject matter are drawn from the University Faculty and are supplemented by specialists selected for their attainments in particular fields at other institutions. The Catalogue of the Summer School gives specific information as to courses.

In addition to the offerings available at the University in Durham, summer instruction is given in Forestry and Fish and Game Management at the Forestry Summer Camp.

UNIVERSITY DEGREES.—A student who is a candidate for a degree must meet all the requirements of his elected curriculum as set forth in the Catalogue for the year in which he first pursues that curriculum, unless the College having jurisdiction over the curriculum makes changes applicable to all students pursuing it. The University reserves the right to withdraw any course or curriculum announced in the Catalogue or to substitute other courses or curriculums therefor. A student must also meet such new regulations as may be subsequently adopted by the University and made applicable to him; and he is also held responsible for such other rules and regulations as may be published in the *Official Handbook for Students*. The following degrees are conferred:

Graduate School—Master of Science, Master of Arts, Master of Education, and Master of Science in Engineering.

College of Agriculture—Bachelor of Science.

College of Technology—Professional degrees of Mechanical Engineer, Civil Engineer, and Electrical Engineer; Bachelor of Science in Chemistry, Chemical Engineering, Civil Engineering, Electrical Engineering, Mechanical Engineering, Physics.

College of Liberal Arts—Bachelor of Arts; Bachelor of Science.

CERTIFICATE

College of Agriculture—In the Applied Farming Curriculum, a Certificate of Graduation.

College of Liberal Arts—In the Two-Year Secretarial Curriculum, a Certificate of Graduation.

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RESERVE OFFICERS TRAINING CORPS.—In co-operation with the United States War Department, the University maintains a Reserve Officers Training Corps as a part of the Federal system to provide systematic military training for school and college students.

While the War Department supervises the training, details regular, reserve, and non-commissioned officers of the Army as instructors, and loans the necessary equipment, students undergoing this instruction who are members of the R.O.T.C. are in no way members of the military forces of the Government. They remain civilians, and, as regards obligations to serve the Government, are in the same category as students who are not members of the R.O.T.C.; that is, enrollment in the R.O.T.C. involves no additional obligations as to military service.

The cadets are furnished with a uniform which is worn during military instruction only. An expense to them is the purchase of belt, cravat, shirt, and one or two textbooks.* Only tan shoes and tan socks are authorized to be worn with the uniform.

At present, the instruction offered is branch-immaterial. Successful completion of the four semesters of required basic R.O.T.C. training does not automatically entitle the student to any particular rating or rank upon his induction into the military forces.

Instruction in the advanced phase of the R.O.T.C. has been resumed, following discontinuance during the war. In general, any man who served for one year in any military organization during the war may elect advanced R.O.T.C. in order to earn a reserve commission in the Army. No military training is required of former service men.

CONFERENCES, INSTITUTES, AND SHORT COURSES.—In its endeavor to serve the needs of the State and region, the University conducts or sponsors many conferences, institutes, and shorts courses.

INSTRUCTION OF LESS THAN COLLEGE GRADE is made available by the University in the Applied Farming Curriculum. The purpose of this curriculum, organized in the College of Agriculture, is to give the greatest amount of practical training that is possible during a two-year period of time to students who cannot attempt the four-year curriculum. It is directly administered as a separate unit, and a trained teacher of agriculture is in charge with his own staff of instructors. Assistance from any of the College departments or per-

**A deposit of \$15 is required of each student having military equipment in his possession, whether registered for Military Science or not. At the end of the academic year or upon a student's severing his connections with the University, this deposit will be refunded to him upon the satisfactory return to the University of all military property loaned—except that a reasonable deduction will be made to cover any damage beyond natural wear and tear or for the loss of any of the equipment.*

INSTRUCTION

sonnel in curriculum matters is available. Any high-school graduate of good character, or any student who has completed a minimum of two years of high school and is 18 years of age or over, may be admitted. Two academic years of residence and field training or supervised farm experience during the summer months are required for graduation. A special bulletin of the Applied Farming Curriculum may be secured from the Dean of Student Administration or from the Office of the Applied Farming Curriculum.

STUDENT PERSONNEL SERVICES

University responsibilities for student activities and welfare outside the formal academic organization are co-ordinated through the Dean of Student Administration, an office established in March, 1946. The activities in this area include supervision of student health, counselling, living arrangements, employment service, extra-curricular activities, student financing, academic record keeping, maintenance of academic standards, and protection of personal standards of conduct.

THE UNIVERSITY HEALTH SERVICE, located in Hood House, is devoted to the protection, improvement, and maintenance of student health. A well-equipped out-patient clinic for diagnosis and treatment of ambulatory patients and a modern hospital of 26 beds, with private and semi-private rooms, wards, and an isolation division for communicable diseases, are constantly available for students who require medical or surgical care. Registered nurses are on duty at all times. Individual health guidance is given through personal conferences with the University Physician.

Payment of tuition entitles students to all medical care rendered by the University Physician and the nursing staff. Injury and illness which requires hospital confinement other than in Hood House, services of specialists, operations, ambulance service, special nurse, or special prescriptions are at the expense of the student. Bed patients at Hood House are charged \$1.00 per day. There is no charge for office calls between the hours of 8:00 A.M. and 5:00 P.M.; at other times, there is a charge of \$1.00. This fee may be canceled by the University Physician if he finds that the onset of the illness or injury occurred at such a time as to make necessary a call during this period. When a student who has been attended by the Hood House staff is asked to return for treatment or observation after regular office hours, no fee will be charged.

THE POSTWAR EDUCATION SERVICE has been set up to facilitate resumption of education by those who have been in military service during the war. The Service handles the admission or re-admission of such individuals to the University, counsels them until they have made a satisfactory adjustment to the University, helps arrange

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desirable individual adjustments of curriculum requirements, and evaluates the academic value of military training.

THE PLACEMENT BUREAU assists Seniors and Alumni to secure positions after graduation. It corresponds with and interviews school superintendents, personnel managers of industrial concerns, and others who employ college graduates, calling to their attention Seniors and Alumni who are seeking positions. The Placement Bureau and the Counselling Service are closely allied.

THE COUNSELLING SERVICE assists students to discover vocational abilities and aptitudes and to develop educational plans to aid in the attainment of occupational aims. It informs students of educational opportunities and services available at the University and elsewhere. Personal guidance is furnished those students who need assistance in solving adjustment problems of an emotional and social nature.

RELIGIOUS ACTIVITIES. Opportunities are provided in Durham for students to practice religion and to participate in religious life. The Hillel Club, the Newman Club, and the Student Christian Movement are the agencies through which the religious interests and life are fostered among the students. (See page 39.)

The Durham Community Church welcomes students to its many services of worship, to Sunday evening programs, and to share church activities through student affiliated membership. The pastor is *ex officio* a member of the staff of the Student Christian movement.

The Roman Catholic Church provides a Chaplain for the Newman Club and holds Sunday Mass at 10 A.M. in Murkland Auditorium.

STUDENT GOVERNMENT

THE STUDENT COUNCIL is an organization of men students which serves as a liaison body between the University Administration and the students, and as a representative group seeking to promote the best interests of the University. Members of the Council are elected by ballot each spring.

THE ASSOCIATION OF WOMEN STUDENTS promotes responsibility in maintaining high standards of personal conduct and encourages active co-operation in self-government. All women students are members of the Association.

ASSOCIATED STUDENT ORGANIZATIONS provides a central administration of business affairs. A committee of six, appointed by the University President, advises member groups in matters of budgeting and expenditure of monies resulting from the Student Activity Tax, and makes recommendations to the President relative to the administration of the Tax.

STUDENT ORGANIZATIONS

THE INTERFRATERNITY COUNCIL, composed of fraternity representatives, regulates Campus interfraternity relations.

PAN HELLENIC co-ordinates interfraternity women's activities and regulates the rushing period.

THE ADVISORY COMMITTEE ON ATHLETIC AWARDS, consisting of three undergraduates and three Faculty members, acts on all recommendations for the awarding of men's athletic insignia, selects Managers of Varsity and Freshman Sports and Cheerleaders, approves and ratifies athletic records made by University athletes in intercollegiate competition, and serves in an advisory capacity to the Senate Committee on Athletics.

THE WOMEN'S ATHLETIC ASSOCIATION includes all registered women students and provides opportunity for participation in extracurricular sports. The organization owns a cabin at Mendum's Pond for outings, and sponsors Campus social events.

ACADEMIC, HONORARY, PROFESSIONAL, AND DEPARTMENTAL SOCIETIES

PHI KAPPA PHI, National, Honorary, highest ranking Seniors selected from all Colleges.

ALPHA CHI SIGMA, Professional, Chemistry.

ALPHA KAPPA DELTA, National, Honorary, Sociology.

ALPHA ZETA, National, Honorary, Agriculture.

THE UNIVERSITY BAND is composed of members of the University Regiment and selected students.

THE UNIVERSITY CHOIR, advanced choral group.

BRANCH OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS (See course description.)

THE CLASSICAL CLUB, Latin and Greek.

THE ECONOMICS CLUB, Business, Economics, and Secretarial Students.

BRANCH OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS (See course description.)

ENGINEERS CLUB

FORESTRY CLUB

THE FRENCH CLUB

GAMMA KAPPA, Geology

THE GLEE CLUB has two organizations, one for men and one for women. Membership is open to undergraduates interested in Choral

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Singing who fulfill try-out requirements. The club presents several public programs a year.

THE GRADUATE SCIENCE SOCIETY, Graduate students and Faculty members engaged in research in the Sciences.

THE HORTICULTURE CLUB for students interested in Horticulture.

THE INTERNATIONAL RELATIONS CLUB is one of over 450 chapters throughout the world assisted by the Carnegie Endowment for International Peace.

KAPPA DELTA PI, Honorary, Education.

JUNIOR GREETERS OF AMERICA. Charter No. 1 of this countrywide organization sponsored by hotel executives is operated by the students of Hotel Administration. Membership on this Campus makes automatic the acceptance of the graduate into the parent organization, International Greeters, a very definite start towards success in the hotel industry.

STUDENT ORGANIZATIONS

BRANCH OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS (See course description)

DELTA CHI, Honorary, Mathematics

MASK AND DAGGER is a dramatic society which promotes interest and participation in dramatics on Campus. It assists in the production of one-act and three-act plays each year. Its members are chosen from those who actively participate in the various phases of play production.

MINNESEAENGER, German

OCCUPATIONAL THERAPY CLUB

OPUS 45, Music Club

PHYSICAL EDUCATION CLUB, an organization for men students majoring in the Physical Education Preparation Curriculum

PI GAMMA MU, National, Honorary, Social Science

PHI LAMBDA PHI, Honorary, Physics

PHI SIGMA, National, Honorary, Biology

PLANT SCIENCE CLUB, Faculty members and Graduate Assistants

POULTRY SCIENCE CLUB

PSI LAMBDA, Honorary, Home Economics

THE PSYCHOLOGY CLUB

SCABBARD AND BLADE (Company F. Sixth Regiment), National, Honorary, Military

STUDENT ORGANIZATIONS

SECRETARIAL CLUB, students registered in the Secretarial Curriculum

SOCIOLOGY CLUB

TAU KAPPA ALPHA, National, Honorary, Debate and Oratory

SOCIAL HONORARY SOCIETIES

THE BLUE KEY, Senior men leaders

MORTAR BOARD, Senior women leaders

SENIOR SKULLS, Senior men leaders

STUDENT PUBLICATIONS

THE GRANITE is an illustrated annual published by the Junior Class.

THE NEW HAMPSHIRE, weekly newspaper, presents Campus and Alumni news and is published by a Student Editorial Board.

THE NEW HAMPSHIRE STUDENT WRITER, a collection of the best undergraduate prose and verse of the year, is published annually under the supervision of the Department of English.

RELIGIOUS ORGANIZATIONS

THE HILLEL CLUB is an organization to bring to Jewish students a more adequate knowledge of their heritage, to make Jewish religious and cultural values vital and revelant for the college generation, and to foster friendship, co-operation, and understanding among the various religious groups on this Campus. Activities include religious services, holiday observances, lectures, musicals, classes in Jewish studies, discussion groups, and the maintenance of a library relative to Jewish study which is open to all students. A Rabbi is the Counsellor to the students.

THE NEWMAN CLUB, a club of Catholic culture and fellowship, fosters the spiritual, intellectual, and social interests of Catholic students. It is a member of the Newman Club Federation. Activities include corporate communions, discussion study groups, lectures, dramatics, parties, dances, etc. A Reading Room is provided in New Hampshire Hall.

THE STUDENT CHRISTIAN MOVEMENT is a fellowship of students united in the desire to understand the Christian faith and live the Christian life in realistic awareness. The Cabinet plans and carries out a Sunday Evening Fellowship, Freshman, Camp, Deputations, Bible Study, Conferences, Religious Emphasis Week, Faculty Firesides and Programs on World Responsibilities. The Canterbury Club, Channing

UNIVERSITY OF NEW HAMPSHIRE

Club, and the Christian Science Organization foster the religious interests of their respective groups. The S.C.M. is affiliated with the Student Christian Movement of New England and the World Christian Federation.

CHRISTIAN WORK, INC. sponsors the Student Christian Movement. Its Advisory Board has representatives from the churches of New Hampshire through seven denominational agencies, the State Y.M.C.A., the Y.W.C.A., and from Alumni, Faculty, and students of the University of New Hampshire.

THE UNIVERSITY RELIGIOUS COUNCIL represents the co-operative religious work of the Hillel Club, the Newman Club, and the Student Christian Movement. Projects include Religious Emphasis Week, recreation, radio programs, and publicity.

INTEREST GROUPS

THE CHESS CLUB.

THE FLYING CLUB fosters interest in flying powered and motorless aircraft as a sport.

FOLIO, a society composed of students interested in the reading and discussion of contemporary literature.

THE LENS AND SHUTTER CLUB, organized for group study and enjoyment of photography.

MIKE AND DIAL, composed of students interested in various phases of radio work—announcing, writing, and technical work.

THE NEW HAMPSHIRE CLUB, composed of men who have earned Varsity athletic letters.

THE OUTING CLUB sponsors out-of-doors activities, especially mountain climbing and skiing, and conducts the annual winter carnival and the University horse show. The club owns cabins in Franconia Notch, at Jackson, and at Mendum's Pond, nine miles from Durham. Throughout the school year weekly climbing or skiing trips are conducted. Membership is open to all students, Faculty members, and Alumni.

THE POETRY WORKSHOP, a group of students interested in the study and writing of poetry.

PRESS CLUB, a group of students interested in journalism.

THE SPHINX SOCIETY, a service organization designed to promote good will between the University and visiting athletic teams. The society entertains visiting teams and aids their managers and coaches. Membership is limited to one member of the Junior class from each fraternity.

STUDENT ORGANIZATIONS

THE STUDENT WORKSHOP, open to any student or student organization for the execution of personal or group projects. Typical activities include poster making for social events, printing of stationery, wood-working, making of decorations, construction of sports equipment or room furniture, individual exploration in woodcarving, painting, photography, radio, and other hobby interests. Not a course; no laboratory fee; nothing assigned; requirements for safety and protection of persons and equipment only.

THE UNIVERSITY 4-H CLUB, students who have engaged in boys' and girls' club extension work.

WENTACRES VETERANS ASSOCIATION provides recreational, social, and educational activities for its members and their families.

THE YACHT CLUB, open to students, Faculty, and Alumni, furthers the sport of intercollegiate racing, and provides sailing facilities for members. The club owns a fleet of Town Class Junior sloops which are anchored on Great Bay, three miles from Durham.

CIVIL AIR PATROL, Army Air Force Auxiliary, organization for men and women students interested in aviation.

SOCIAL ORGANIZATIONS, FRATERNITIES, AND SORORITIES

THE ASSOCIATION OF WOMEN DAY STUDENTS furthers the interests of women commuters in the cultural and social activities of the University.

DORMITORY AND CLASS ORGANIZATIONS. Each of these groups is organized to promote its social activities.

FRATERNITIES.*—Kappa Sigma, (1894) 1901; Sigma Alpha Epsilon, (1894) 1917; Theta Chi, (1903) 1910; Lambda Chi Alpha, (1906) 1918; Alpha Tau Omega, (1907) 1917; Phi Mu Delta, (1914) 1918; Pi Kappa Alpha, (1921) 1929; Sigma Beta, (1921); Phi Alpha, (1922) 1924; Theta Kappa Phi, (1922) 1923; Alpha Gamma Rho, 1924; Phi Delta Upsilon, (1924); Tau Kappa Epsilon, (1926) 1932.

SORORITIES.*—Chi Omega, (1897) 1915; Alpha Chi Omega, (1913) 1924; Alpha Xi Delta, (1913) 1914; Phi Mu, (1916), 1919; Kappa Delta, (1919) 1929; Theta Upsilon, (1926) 1930; Pi Lambda Sigma, 1929.

OTHER SERVICES AND FACILITIES

THE GENERAL EXTENSION SERVICE is designed to make available to urban and rural areas the contributions of the University's Research

**The dates listed indicate (1) the date (in parenthesis) of founding as local fraternity, and (2) the date of granting a charter to the national fraternities.*

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bodies and its Faculty, and to co-ordinate activities carried on with state agencies and organizations.

Rural work in Agriculture and Home Economics is conducted co-operatively with the United States Department of Agriculture and the County Farm Bureaus through a staff of sixty-four members. Specialists conduct demonstrations in Farm Management, Dairying, Forestry, Soils and Crops, Poultry, Horticulture, Marketing, Engineering, Nutrition, Social Organization and Recreation, Clothing and Home Management; and each county has Agricultural, Home Demonstration, and 4-H Club Agents.

The General Extension Service is empowered under the administration of its Director to develop Extension courses, with or without University credits, in centers within the state; to make lecture engagements for Faculty speakers; to operate the University Editorial Offices, including the publication of all official bulletins, the news, radio and photographic services, the University Broadcasting Station, and the University Educational Film Library; to hold institutes, either on or off the Campus; to conduct special short courses at the Crafts Cottage or other laboratories. Courses conducted under the General Extension Service are taught by regular members of the University's resident Faculty or by staff members of co-ordinate rank. A catalogue describing Extension courses is available upon application.

THE AGRICULTURAL EXPERIMENT STATION is concerned with solving problems that shall contribute to a continuous improvement in the services and satisfactions of farm life in the state, and to training farm boys in the classrooms of the University. Much thought is being brought to bear through experimental projects concerning postwar problems of adjustment, involving new types of farm machinery, new adaptations of crops, animal and plant diseases, and necessary related farm adjustments. The usual tests of seeds, fertilizers, and soils are continued; plants and insects are identified; blood samples are tested; and post-mortem examinations of animals are made. Bulletins covering a wide range of subjects are printed for free distribution to all persons in the state who have use for them.

THE ENGINEERING EXPERIMENT STATION provides engineering and research facilities for the industries of the state and for various agencies of the state government. The personnel and facilities of the University are available through this agency to manufacturers for the solution of technical problems.

At the present time, in co-operation with the State Planning and Development Commission, a long-range program devoted to studies of wood-waste utilization is in progress.

STUDENT ORGANIZATIONS

An unusual opportunity is provided for properly qualified undergraduate and graduate students to participate in the technological work of the Engineering Experiment Station.

Provisions can be made for the establishment of industrial fellowships by both in-state and out-of-state industries. At the present time, a number of firms have availed themselves of this opportunity to do specialized research in certain industrial fields.

THE BUREAU OF GOVERNMENT RESEARCH serves as a headquarters for the New Hampshire Municipal Association and acts as a clearing house for problems of governmental administration.

THE BIOLOGICAL INSTITUTE groups all plant and animal sciences together for research work and co-operates with state and federal Departments and organizations in obtaining biological information. Major projects are now devoted to a long-range program of conservation of natural resources, with special emphasis on wild life, and a biological survey of the state. In co-operation with the State of New Hampshire, the Biological Institute is conducting a survey of the resources of Great Bay and the adjacent coastal waters.

THE FORESTRY SUMMER CAMP, located in the heart of the White Mountains at Passaconaway, includes a tract of 400 acres of timberland on which are examples of most of the northern forest types. The property is surrounded by the White Mountain National Forest which makes available to the camp more than a half million acres of the finest woodlands in the East. Students are housed in an attractive building, formerly a summer hotel. It not only affords adequate living facilities but also provides drafting rooms and laboratory space. The boundary of a national game area of 60,000 acres is less than a half mile from camp, and the Bartlett Experimental Forest is only a short distance away. National forest operations are carried on nearby and serve for purposes of instruction. Recreational activities include swimming, fishing, tennis, and mountain climbing. There are fifty mountain peaks within a ten-mile radius. Bartlett, Conway, and North Conway villages are easily accessible.

THE HAMILTON SMITH LIBRARY is the main building in the University library system, which includes various branches such as the Plant and Animal Sciences Library in Nesmith Hall, the James Hall Chemistry Library, the DeMeritt Hall Library of Engineering, Architecture, and Physics, and the Morrill Hall Bureau of Government Research Library. It is a United States Government Depository Library. The book collection numbers 136,000 volumes. Nine hundred and forty-six periodicals are received. In the Newspaper Room a half dozen metropolitan dailies and most of the New Hampshire papers may be enjoyed. A generous browsing area facilitates the

UNIVERSITY OF NEW HAMPSHIRE

selection of books for pleasure reading, and the open stacks give the student every opportunity to familiarize himself with the world of books.

Because the Hamilton Smith Library serves the townsfolk, as well as the Faculty and students of the University, there is a children's room (the Charlotte Thompson Room) increasingly well-stocked with the best in children's literature. This collection, used constantly by the children, provides an unusual laboratory for the students and others who plan to work with children and children's books.

Housed on the second floor is the Art Division. In its exhibit gallery is displayed a succession of loan exhibitions selected to appeal to a variety of interests. There is a collection of 1588 phonograph records, the nucleus of which was a gift from the Carnegie Corporation of New York. There are three listening rooms. The largest of these, used also for group music appreciation, is the Philip Hale Room, which contains the desk, chair, and many of the books of the well-known music critic.

STUDENT WORKSHOP. (See page 176.)

MUSEUM COLLECTIONS. Although the University has no museum, there are several collections housed in various buildings. At present, specimens are being collected to illustrate the zoölogy, geology, entomology, and Americana of New Hampshire. Many New Hampshire collectors and naturalists have made the University their permanent depository.

UNIVERSITY LANDS AND BUILDINGS

University lands comprise approximately 2300 acres. Lands at Durham total about 1500 acres, of which some 170 acres are devoted to the campus proper and athletic fields; 316 acres to hay and mowing; 42 acres to orchards and gardens; 471 acres to forest; 464 acres to pasture; and 20 acres to ponds.

BUILDINGS FOR ADMINISTRATION, INSTRUCTION, AND RESEARCH

THOMPSON HALL (1893), the general Administration building, is named for Benjamin Thompson, benefactor of the University. It contains the Offices of the President, the Business Office, the Offices of the Dean of Student Administration, the Office of the Alumni Secretary, the Offices of the Deans of Men and Women, and the Offices of the General Extension Service. Located on the third floor are the library and studio of the Music organizations, the office and classroom of the Speech Section of the English Department, and the University Radio Studio. The University Bookstore is also in this building.

UNIVERSITY LANDS AND BUILDINGS

CONANT HALL (1893), named for John Conant of Jaffrey, a generous friend of the College, houses the Departments of Civil Engineering and Geology and the Engineering Experiment Station. A Government Weather Observatory is located here to serve airline travel through regular hourly recordings of weather conditions.

NESMITH HALL (1893, remodeled and enlarged in 1939), the headquarters of the Biological Institute, houses all University Plant and Animal Science departments except Dairy Husbandry. One of the four original Campus buildings, it has been enlarged and renovated into a modern science center, four times its former size. It is named for Judge George W. Nesmith of Franklin, a former Trustee President.

CHARLES E. HEWITT HALL (1893) houses the laboratories in machine, wood, forge, and welding shop practice. Located also in this building are the internal combustion and aeronautical laboratories, the Photographic Studio and the Educational Film Library; the Student Workshop, the University Printing and Duplicating Service, and the Cold-Storage Plant used by the Department of Horticulture for the fruit from the University orchards and as a laboratory for instruction in the handling and storage of horticultural products. It is named for Charles E. Hewitt, first Dean of the College of Technology.

MORRILL HALL (1902) serves as the headquarters for the College of Agriculture, the Bureau of Government Research, and the Departments of Social Sciences, including Economics and Business Administration, Sociology, History, Agricultural Economics, and Government. It is named for Senator Justin Morrill of Vermont, sponsor of the Land Grant Act.

BALLARD HALL (1905, remodeled in 1942) affords classroom, studio, and office facilities for the Department of Music, houses the Ceramics Laboratory, and serves as headquarters for *The New Hampshire*, *The Granite*, and a number of student organizations.

NEW HAMPSHIRE HALL (1906, remodeled in 1940) provides facilities for Physical Education for Women and for student organizations including the Hillel Club, the Newman Club, and the Student Christian Movement; it contains a lounge room, an auditorium seating 1100 and a completely equipped stage for dramatic productions.

HAMILTON SMITH LIBRARY (1907) was erected by means of a union of funds left by Hamilton Smith of Durham for a town library, and donated by the Carnegie Corporation, and provided by the state. In 1937, large wings were added to each side of the original building thereby doubling reading and service areas. The next year the entire second floor was remodeled to include sound-proof music listening rooms, and exhibition gallery, and a fine arts reading and reference room. In 1940, a new stack wing was added.

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DAIRY BUILDING (1910) is arranged and equipped for purposes of instruction in Dairy Husbandry and Manufacture.

DEMERITT HALL (1914), named for Albert DeMeritt of Durham, is the headquarters of the College of Technology and includes classrooms, laboratories, and offices of the Departments of Mechanical and Electrical Engineering, Physics, and the Arts.

MURKLAND HALL (1927), named for Charles Sumner Murkland, President from 1893 to 1903, is the headquarters of the College of Liberal Arts and includes classrooms and offices for the Departments of English, Languages, Mathematics, Education, and Hotel Administration.

CHARLES JAMES HALL (1929), bearing the name of a former Professor of Chemistry, provides lecture rooms and laboratories for instruction and research for the Departments of Agricultural and Biological Chemistry, Chemistry, Chemical Engineering, and the Engineering Experiment Station.

CHARLES HARVEY HOOD HOUSE (1932), headquarters for the University Student Health Service, outpatient clinic and hospital, is the gift of the late Charles Harvey Hood and Mrs. Hood of Boston. It was presented to the Trustees with funds for its maintenance, in 1930, the fiftieth anniversary of Mr. Hood's graduation from the University of New Hampshire. It is completely furnished and equipped for all types of medical and surgical service.

PETTEE HALL (1938), named in honor of the late Dean Charles H. Pettee, houses the Departments of Agricultural Engineering, Home Economics, and Military Science.

TEXTILE AND CRAFT COTTAGE is equipped with looms, rug frames, tools, and supplies for several types of handcraft projects.

ANIMAL NUTRITION LABORATORY is maintained for the research studies in animal metabolism conducted by the Agricultural Experiment Station.

BUILDINGS AND GROUNDS SERVICE BUILDING (1940) contains the office of the Superintendent of Properties, shops and storage rooms of the Buildings and Grounds Service Departments, and the University Rifle Range. The University and Town of Durham fire station is also located in this building.

FARM LANDS AND BUILDINGS

THE UNIVERSITY FARM, maintained for instruction and research, includes the 42-acre Horticultural Farm, the Poultry Plant, the several livestock barns, extensive greenhouses, and the University Forest.

UNIVERSITY LANDS AND BUILDINGS

The Horticultural Farm has buildings of its own, an unusually fine orchard site, acreage for small fruit and vegetable production, an apiary, and a packing plant equipped with a grader and other apparatus for the handling of fruit. In the poultry unit are several houses and range facilities, a special pathological laboratory for disease diagnosis, and experimental flocks of hens and turkeys. Livestock barns include the Dairy Barns, providing accommodations for 120 dairy animals and containing a modern Milk House; the Stock Barn, housing purebred herds of cattle and sheep, and thoroughbred stallions; the Stable of the New Hampshire Racing Commission; the Horse Barn; the experimental Sheep Barn; and the Piggery. The University Forest has 655 acres of old and second-growth timber and a nursery for the growing of seedling trees.

ATHLETIC FACILITIES

UNIVERSITY FIELD HOUSE (1938) has a main floor area of nearly half an acre. It provides opportunity for indoor football and baseball practice and track. A movable wooden floor and bleachers for 2500 spectators are installed for basketball. Offices and classrooms of the Department of Physical Education for Men are also located here.

NEW HAMPSHIRE HALL (1906 and 1940) accommodates the Department of Physical Education for Women (see page 263).

LEWIS FIELDS (1936), outdoor recreational center, are named for Edward Morgan Lewis, President from 1927 to 1936. They include six fields for football, soccer, and lacrosse, four baseball diamonds, a cinder track with a 220-yard straightaway, pits and runways for jumping and vaulting, fourteen composition and six clay tennis courts, concrete bleachers seating 1750 spectators at baseball games, and concrete stands seating 5000 spectators at football and track and field contests. The entire equipment was built in co-operation with Federal work-relief agencies. Materials used in the construction of the main field stands were provided by Alumni of the University as the first project of the Alumni Fund.

BRACKETT FIELD (1936), the varsity baseball field on Lewis Fields, is named in honor of William H. L. Brackett, '14, prominent student leader of his college generation who died from wounds received during World War I.

MEMORIAL FIELD (1922), outdoor recreational center for women students, was the first gift of major importance from the Alumni to the University and is a memorial to the eighteen New Hampshire men who lost their lives in World War I.

SWIMMING POOL (1938) is available, during the summer, for general swimming and classes of instruction. Life-guard service, main-

UNIVERSITY OF NEW HAMPSHIRE

tained by the University, a graduated diving tower, and dressing and locker facilities are features of the swimming unit. The water is scientifically treated through a filtration plant. In the winter months the pool provides skating facilities.

RESIDENTIAL HALLS

COMMONS (1919) contains the Freshman dining hall, the guests' dining room, the President's dining room, the Faculty dining room, a cafeteria, a trophy and lounge room, student organization rooms, and dormitory facilities for 44 undergraduate women.

FAIRCHILD HALL (1916) honors Edward Thomson Fairchild, President from 1912 to 1917. It furnishes accommodations for 113 undergraduate men.

EAST AND WEST HALLS (1918), erected by the United States Government to furnish housing facilities for troops in training at the College during World War I, provide comfortable quarters at low cost for 228 men.

SCHOFIELD HOUSE (1895, remodeled and enlarged in 1943) furnishes quarters for 52 undergraduate women.

SMITH HALL (1908), originally constructed through the generosity of Mrs. Shirley Onderdonk of Durham as a memorial to her mother, Mrs. Alice Hamilton Smith, furnishes rooming facilities for 79 women students.

CONGREVE HALL (1920) accommodates 233 undergraduate women. The first unit was built with funds made available through the will of Mrs. Alice Hamilton Smith of Durham and bears her daughter's name. A second unit was added in 1938, and the building completed in 1940.

HETZEL HALL (1925), named for Ralph D. Hetzel, President from 1917 to 1927, accommodates 156 undergraduate men.

SCOTT HALL (1932), named for Clarence Watkins Scott, Professor of History from 1879 to 1930, furnishes accommodations for 119 undergraduate women.

ELIZABETH DEMERITT HOUSE (1931), named for Mrs. Elizabeth P. DeMeritt, Dean of Women from 1919 to 1931, and maintained for practice in Home Management, is a modified Cape Cod cottage, thoroughly equipped with modern household devices. It houses six resident students, two instructors, and a play school for pre-school children.

LUELLA PETTEE HOUSE (1941), named for Mrs. Luella Pettee, wife of former Dean Charles H. Pettee, accommodates 31 undergraduate women.

UNIVERSITY LANDS AND BUILDINGS

GRANT HOUSE (1942) furnishes quarters for 14 undergraduate women.

ENGLEHARDT HALL (1946) named for the late Fred Englehardt, President from 1937 to 1944, accommodates 168 men.

GIBBS HALL (1946) honors William David Gibbs, President from 1903 to 1912. It furnishes accommodations for 168 men.

HUNTER HALL (1946) is named for Roy Deneale Hunter, a Trustee from 1916 to 1944; President of the Board from 1931 to 1944 and acting President of the University 1936-1937, and in 1944. It accommodates 168 men.

GENERAL INFORMATION

METHODS OF ADMISSION

The University will admit without examination properly prepared New Hampshire students who are graduates of high schools or academies of New Hampshire that are approved by the State Board of Education, or those who are graduates of other accredited preparatory schools.

Applicants whose records do not give evidence of capacity, disposition, and preparation adequate for successful college study may be required to withdraw their applications or to submit to examinations to determine their fitness for college study. This applies directly to those who stand in the lower three-fifths of their respective classes in the secondary school, and to others concerning whose qualifications there may be doubt.

The number of non-state students admitted each year is limited to a small proportion of the student body. Selection of out-of-state candidates is made primarily on the basis of their high-school records, but such traits as character, leadership, and initiative will be taken into account. Because of the large number of New Hampshire students needing financial assistance in the form of employment, out-of-state applicants will be expected to give evidence of reasonable financial backing.

Applicants for admission are required to fill out an application form prepared by the University. Copies of this form may be obtained from secondary-school officials in New Hampshire or from the Dean of Student Administration.

An applicant for admission who is a resident of New Hampshire is required to remit \$10 with his application. One from outside the state is required to remit \$25. If the applicant is admitted to the University, his advance payment will be applied to the first semester's tuition; if he is not admitted, his advance payment will be returned. In the case of the applicant who is accepted for admission but does not enter, the advance payment will not be returned. Remittance should be made either by check or by money order payable directly to the University of New Hampshire and should be sent with the application for admission.

No application for admission in September will be considered before the middle of the preceding February. To insure consideration before

NEW HAMPSHIRE RESIDENTS

the out-of-state quota is filled, out-of-state students should file applications not later than the middle of March. To insure eligibility for financial aid and a choice of dormitory rooms, in-state students should apply during the spring. It is understood that the preparatory work of students applying during the spring will be completed by the end of the school year.

Candidates for admission to the Freshman Class must show evidence, either by credential or examination, that they are prepared in 15 units.

An entrance unit represents one study of four or five recitations a week for one year. It is assumed that two hours of shop or laboratory work are equivalent to one hour of classroom work.

Preparatory subjects are divided into six groups. The minimum numbers of units which should be offered in each group are: Group A, English, 3; Group B, Foreign Languages, none required if Mathematics is offered; Group C, Mathematics, 2 or 3*; Group D, Natural Science, 1; Group E, Social Science (including History), 1; Group F, Vocational Subjects and miscellaneous, none required. Elective units may be offered from all groups, including a fourth year of English. At least 12 of the 15 units should be from Groups A, B, C, D, and E.

Cases not covered by the above statements will be decided by the Committee on Admission.

Candidates for advanced standing may be admitted on the basis of the work satisfactorily completed at the institution from which they come. Students leaving other institutions in poor scholastic standing will not be admitted.

Every candidate for admission claiming New Hampshire residence shall be required to procure a statement, signed by the Town or City Clerk, to the effect that his parents are residents of the town or city from which he purports to register. Students admitted from foreign countries or states other than New Hampshire shall be deemed to be non-resident students throughout the entire University Course unless and until the parents shall have gained *bona fide* residence in New Hampshire.

Students entering the University must be in reasonably good health. They are given a thorough physical examination at the time of entrance.

*This must be Mathematics preparing for further Mathematics; Commercial Arithmetic and Shop Mathematics are classed as Vocational Subjects. For students wishing to pursue courses in Engineering or Chemistry at least 3 units of Mathematics must be offered, including Elementary and Advanced Algebra and Plane and Solid Geometry. Students in the College of Liberal Arts may substitute 2 units of a single Foreign Language for the 2 units of Mathematics.

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VETERANS

Because of their special problems, a Postwar Education Service has been set up to handle the admission of former Service men and war industry workers. In general, they will be expected to fulfill the usual entrance requirements, but due allowance will be made for interruptions of their education caused by the demands of the war. Those who because of the war were unable to complete high school will be admitted if they appear to be prepared to pursue the college work they plan. For full details write to the Director, Postwar Education Service, University of New Hampshire.

SPECIAL STUDENTS

A mature student who is not a candidate for a degree, upon presenting satisfactory evidence of his ability to carry successfully the desired courses, may be admitted as a special student for one year only, upon the approval of the Committee on Admission.

In choosing his studies he must have the approval of the Head of each Department in which he elects courses, and of the Deans of the Colleges concerned.

No credit earned by a special student shall count toward a degree except upon approval of the Committee on Admission.

ADVANCED STANDING

BY TRANSFER

Candidates for advanced standing from approved institutions may be admitted by the Committee on Admission. Their status in the University of New Hampshire will be determined by the quantity and quality of the work completed at the institution from which they come.

(1) Such students must file the same application for admission as required of Freshmen. In addition they must furnish an official transcript of work done at institutions previously attended.

(2) All candidates for the bachelor's degree, admitted to advanced standing, must spend their last year in residence, either in course or in Summer School. This requires the completion of at least 32 semester credits.

(3) Regardless of the amount of advanced standing a student may secure, in no case will he be granted a bachelor's degree until he has satisfied the full requirements of the curriculum he may elect.

BY EXAMINATION

Students twenty-five or more years of age who desire to work for a bachelor's degree may secure a substantial amount of the necessary

FEES AND EXPENSES

credit by examination. Inquiries regarding the details of this arrangement should be addressed to the Dean of Student Administration.

ORIENTATION WEEK

Orientation Week was instituted at the University of New Hampshire in 1924. It is evident from a study of the results of the activities of this Week that it has served as a valuable means of adjusting new students, of creating right attitudes toward college work, and of minimizing the usual delays during the first few weeks of the regular term. The week also affords an opportunity for the students to learn to know each other, to organize their efforts, to work together, to play together, and to become acquainted with the Campus, the buildings, the Faculty and with the courses of study and the traditions of the University.

Attendance of all Freshmen throughout Orientation Week will be obligatory. Any candidate for the Freshman Class who is absent from the exercises will seriously imperil his admission to the University.

FEES AND EXPENSES

The tuition fee is \$160 per year for residents of New Hampshire and \$360 for non-residents. This charge is all inclusive, covering registration, laboratory, health, graduation fees, and admission to all intercollegiate athletic events. However, refundable deposits may be required to cover loss or breakage in certain departments. Likewise a charge will be made for private lessons in music.

Any student registering for 8 credits or more shall pay the full semester tuition. Any student registering for less than 8 credits shall pay \$6.00 per credit hour if a resident, and \$13.00 per credit hour if a non-resident.

ESTIMATE OF FRESHMAN EXPENSES FOR A SEMESTER

	<i>High</i>	<i>Average</i>	<i>Low</i>
Room (Dormitories)	\$60.00	\$40.00	\$32.00
Board (at Commons)	110.00	110.00	110.00
Tuition*	80.00	80.00	42.50
Books	20.00	20.00	20.00
Laundry	18.00	10.00	7.00
Incidentals†	50.00	35.00	25.00
Total	\$338.00	\$295.00	\$236.50

*If not a resident of New Hampshire add \$100 to high and average and \$137.50 to low per semester. If a resident and not a holder of a tuition grant, add \$37.50 to low.

†Expenses for travel, clothing, etc. vary with the individual student, and should be added.

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TUITION.—Tuition for each semester is payable in advance. Students who find it difficult or impossible to procure the necessary funds for the full amount due for a semester may make arrangements acceptable to the Treasurer for a series of payments during a semester.

CHANGES IN RATES.—The University reserves the right to adjust charges for such items as tuition, board and room rent from time to time. Such changes will be held to a minimum and will be announced as far in advance as feasible.

Registration for eight or more credits entitles the student to admission to all home varsity athletic contests.

ADVANCE TUITION PAYMENT.—An applicant for admission who is a resident of New Hampshire is required to remit \$10 with this application; one from outside the state is required to remit \$25. If the applicant is admitted to the University, his advance payment will be applied to the first semester's tuition; if he is not admitted, his advance payment will be returned. The advance payment of a student who is admitted but does not enter will not be returned.

MILITARY DEPOSIT.—Uniform for members of the Reserve Officers Training Corps is provided in co-operation with the Federal Government. A deposit of \$15 is required of each student to whom military equipment is issued, refundable, less lost or damaged articles, at the time of returning military equipment.

ATHLETIC LOCKER DEPOSIT.—Every student participating in the program of Physical Education and Athletics for Men and Physical Education for Women is required to deposit \$1.00 for a locker which will be refunded upon return of the lock to the equipment room, less 25 cents per semester, to meet partially the expense of towel service.

STUDENT ACTIVITY TAX.—The Student Activity Tax, authorized by vote of the undergraduate students with the approval of the Board of Trustees, is paid by each undergraduate to a duly authorized representative of the Associated Student Organizations at the time of registration. The University Business Office will require evidence of the payment of the tax before registration receipt is issued. The revenue from the tax provides each student with *The New Hampshire*, student newspaper; *The Granite*, University Annual; Student Government and class activities. During 1945-1946, the tax was \$4.30 for men students and \$4.70 for women.

BOOKS.—Students may purchase books, classroom and other supplies at the University Bookstore in Thompson Hall.

ROOMS.—The University has seven dormitories for women and seven for men. All rooms are heated, lighted and furnished. Bed linen, blankets and towels, however, are provided by the individual student.

FEES AND EXPENSES

Each women's dormitory is equipped with a laundry. A service room is provided in each dormitory where grills and irons may be used with safety. Prices range from \$32 to \$60 a semester. Applications for rooms in the dormitories should be addressed to the Secretary, Office of Room Assignments, Thompson Hall, University of New Hampshire, Durham.

Students living in University dormitories are required to sign room contracts covering the College year.

A five-dollar (\$5.00) room deposit must accompany each application, this deposit to be forfeited if the room accepted is not occupied by the applicant. The deposit is held as a guarantee against breakage and will be returned at the close of the year or upon withdrawal.

Room rent is payable in advance. For the Fall Semester room rent must be paid not later than August 15, and for other semesters during the registration periods. Rooms reserved will be held only until August 15 unless the Fall Semester's rent is paid before that date.

Rooms paid for and not occupied one day after registration may be declared vacant and the room rent returned, unless the individual holding the reservation makes a written request to the Dean of Men to hold the room until a later date. The advance payment for the room will not be returned to those making this special request. No room will be reserved more than ten days after the registration date. Early application is necessary in order to secure a choice of rooms. Rooms in private dormitories or families may be secured for about the same prices as for those in University dormitories.

Women students, unless living at home, are required to room in one of the women's dormitories or a sorority house, unless working for her room in a private family. A competent house director is in charge of each women's dormitory.

BOARD.—A dining hall is operated and supervised by the University for the accommodation and benefit of the students. All Freshmen, whose homes are not located in Durham, are required to board at the University Dining Hall for the first two semesters of attendance at the University. The aim of the compulsory regulation is to insure a broad fellowship and to safeguard the health of the first-year students by offering skilled dietetic oversight in the selection and preparation of their food. The Dining Hall is equipped with the best appliances for cooking and serving on a large scale, and is subject to constant sanitary inspection by the University Physician. Board is \$110 per semester, payable at registration for each semester.

The Dining Hall is not operated for profit. Savings made possible by reduced costs of operation are passed along to the students in the form of reduced board charges.

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A cafeteria is open to all students of the upper classes who may desire to take advantage of the moderate price and the high quality of food available at the University Dining Hall.

PERSONAL CASH DEPOSITS.—Students are urged to arrange checking accounts in their home banks, or to place money on deposit in the Business Office until needed, in order to avoid possible loss resulting from keeping on hand considerable sums of money. Such banking arrangements will also facilitate payment of registration bills which are due and payable during the stipulated registration periods. The Business Office will accept and cash student checks.

UNIVERSITY AID TO STUDENTS

SELF-SUPPORT

A great many students earn their education in part by means of their own labor during summers and while in college. Students find employment as library assistants, assistants in instructional and research laboratories, proctors in dormitories, clerks and office assistants, waiters in the dining halls, student janitors, and student workers on the farms and about the Campus. Others find employment each year in fraternities, sororities, and homes and stores in the community.

All students and prospective students are advised, however, to survey carefully their individual physical strengths and scholastic aptitudes before committing themselves to the arduous combination of intensive study and part-time employment.

Students are urged not to count too much upon earning their way the first year, and should be sure of at least \$150 from other sources for each semester of attendance. Inquiries from students concerning self-support should be addressed by women students to the Dean of Women and by men to the Dean of Men.

In order to insure an equitable distribution of University part-time employment, should it become insufficient to fill the demand, the University reserves the right to limit such employment to those students needing it most. Students in poor academic standing will usually be denied the right to University part-time employment.

Applications—Application for part-time employment may be made through the Dean of Women or the Dean of Men, or directly to the employing department. When the arrangements are made directly with a department, they must be reported to the Student Aid Secretary before the student will be paid.

Assistance in Finding Employment—The Dean of Women and the Dean of Men will assist students in finding employment in the homes and business establishments of Durham. An ambitious, hard-working student usually will find steady part-time employment, either on- or off-campus.

Women Students—Women students who wish to earn their room and board in private families must apply to the Dean of Women, who will supervise the making of arrangements. Freshmen women are advised against attempting to earn their room and board in this way unless they are in good physical condition and have excellent preparation for their University work.

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TUITION GRANTS

In order to enable students to attend the University who would be unable to do so without some financial assistance, the Trustees award 250 Tuition Grants annually to residents of New Hampshire who have attended college for less than two semesters. Each Tuition Grant pays \$75 per year and is good for one year only.

Applications for these Tuition Grants must be returned to the Student Aid Committee not later than July 15 for the Fall Semester.

Recommendations for Tuition Grants may be made by the subordinate and Pomona Granges, State Senators, State Federation of Women's Clubs, University Alumni Clubs, and citizens of New Hampshire.

Upon investigation and approval Tuition Grants will be given to those whose need appears to the committee to be the greatest.

Tuition Grants will be forfeited at any time for misconduct or for failure to attain a satisfactory scholastic average for the first semester. A student placed on probation forfeits his Tuition Grant during the period of probation.

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A limited number of scholarships is awarded annually to deserving students. In order to grant scholarships equitably the University requires full information of all applicants relative to the necessity for scholarship aid. Scholarship application blanks will be provided upon request to the Student Aid Secretary. Applications for scholarships should be made directly to the Student Aid Committee.

These scholarships will be forfeited at any time for misconduct or failure to maintain a satisfactory scholastic average. A student placed on probation forfeits his scholarship during the semester of probation.

A more detailed description of the several classes of scholarships follows:

Conant Scholarships.—These scholarships provided by the bequest of John Conant, of Jaffrey, pay \$75 at present and are good for one year. By terms of the bequest they are open to men taking agricultural curriculums and preference is given to residents of Cheshire County.

Nancy E. Lougee Memorial Scholarships.—Since 1921 the interest on \$5,000 bequeathed by Amos D. Lougee, of Somersworth, has been expended for scholarships of \$75 each. They will be assigned each year and will be good for one year only. No applications can be approved without satisfactory evidence that the candidates *would be unable to attend without the aid of the scholarship*. Until July 15 of each year, preference will be given to residents of Strafford County.

SCHOLARSHIPS

Valentine Smith Scholarships.—Through the generosity of Hamilton Smith of Durham, the sum of \$10,000 was given in 1898 to establish the Valentine Smith scholarships.

"The income thus accruing shall be given to the graduates of an approved high school or academy who shall, upon examination, be judged to have the most thorough preparation for admission."

These scholarships pay \$100 a year and are good for four years of consecutive attendance at the University, provided satisfactory scholarship is maintained.

Competitive examinations for these scholarships will be held at the University at the time each group of Freshmen enters. Any student who ranked in the upper fifth of his secondary school class is eligible to take these examinations without previous application. Examinations are not restricted to residents of the state. Contestants will be examined in English, American History, Algebra (through Quadratics), Plane Geometry, and either Physics or Chemistry.

Class Memorial Scholarships.—In accordance with a communication presented to the Board of Trustees by the Alumni Association in 1922, each class upon graduation may establish a fund of \$3,000, the interest of which will be used in payment of a class scholarship, to be awarded by a committee appointed by the President. The respective classes may forward recommendations to this committee, in care of the Alumni Secretary, which will investigate such recommendations before awarding the scholarships.

Scholarships shall be limited to candidates of the highest moral standards and physically sound; preference shall be given to those who require financial aid in order to continue their education, and shall be dependent upon the same standards as govern the holding of other scholarships.

Eighteen classes are expected to establish these scholarships, and each scholarship shall be dedicated to the name of one of the eighteen New Hampshire men who died in the service of his country during World War I. Nine classes have established their scholarships to date.

They are: Forrest Eugene Adams Scholarship, Class of 1922; Paul Edward Corriveau Scholarship, Class of 1923; Pitt Sawyer Willand Scholarship, Class of 1924; George Downes Parnell Scholarship, Class of 1925; Cyril Thomas Hunt Scholarship, Class of 1926; Donald Whitney Libbey Scholarship, Class of 1927, and the Libbey family; Frank Booma Scholarship, Class of 1928; Earle Roger Montgomery Scholarship, Class of 1929; Fred Weare Stone Scholarship, Class of 1930.

Ralph D. Hetzel Interscholastic Debating Scholarships.—The Board of Trustees on December 20, 1926, set aside three scholarships each

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year (each for three years) to be awarded to the three Interscholastic Debaters who may qualify under regulations defined by the Interscholastic Debating League or by the University. These scholarships are limited to residents of New Hampshire.

Hunt Scholarship.—A special scholarship paying \$75 has been established by the Trustees at the request of the United States War Department for the benefit of soldiers, or sons and daughters of soldiers, in the United States Army. This scholarship is named in honor of Colonel William E. Hunt, '99, and Colonel Charles A. Hunt, '01, who have rendered conspicuous and gallant service as officers of the regular army before, during, and since World War I. This scholarship will be granted each year and will be good for one year only. The application cannot be approved without satisfactory evidence that the candidate *would be unable to attend without the aid of scholarship*. Preference will be given to a New Hampshire soldier.

Concord Alumni Scholarship Fund.—The Concord Branch of Alumni of the University of New Hampshire has established a scholarship fund. In accordance with the suggestion of the Concord Branch, money paid in from year to year is employed as a part of the Student Loan Fund of the University. Ultimately, the principal and such interest as accrues will be transferred to a special scholarship fund.

Frank B. Clark Fund.—A trust fund of \$10,000 has been provided by Frank B. Clark of Dover, N. H., the income of which is to be used for the purpose of assisting and encouraging needy and worthy students who are suffering from physical impairment or deformity.

"Students impaired by the loss of an arm shall receive prior consideration.

"The benefits of this gift are to be available to students in any secondary school or college except a secondary school or college which is under the direction or control of a church or religious affiliations or preferences, and with the further understanding that students at the University of New Hampshire shall be given prior consideration."

Dads'-Hetzel Scholarship Fund.—At the second annual Dads' Day at the University, the fathers present voted to establish a scholarship fund to be known as the Dads'-Hetzel Fund and subscribed \$304. For the present this money will be employed as a part of the Student Loan Fund of the University. Ultimately, the principal and such interest as accrues will be transferred to a special scholarship fund.

Edmund L. Brigham Scholarships.—The income of a trust fund of \$4,812 provided by the will of Edmund L. Brigham, a member of the Class of 1876, is divided into two scholarships of equal sums each to be known as the Edmund L. Brigham Scholarship. They will be awarded at the end of each year to the two members of the Freshman Class who

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under the pressure or necessity of having to earn a portion of their college expenses show either a constant improvement in scholarship, or a high scholastic average, or both.

New Hampshire Branch of National Civic Federation Scholarship.—From the income of a fund of \$1,100, established in June, 1930 and supplemented in October, 1937, by the New Hampshire Branch of the National Civic Federation, a scholarship is to be awarded annually to the woman majoring in Economics or Business who, upon completion of six semesters' work and, by excellence of scholarship, character, and promise of leadership, is judged to be most worthy. The Dean of the College of Liberal Arts and the two ranking members of the Department of Economics shall name the winner of this scholarship in each year.

S. Morris Locke Memorial Scholarship.—The income of a fund of \$3,000 established by the late Mary D. Carbee of Haverhill, N. H., as a memorial to Mr. and Mrs. S. Morris Locke, shall be known as the S. Morris Locke Memorial Scholarship. This scholarship is to be awarded each year to the student ranking highest upon completion of six semesters' work who is majoring in Chemistry, Entomology, or in any work where the microscope or microscope technique is largely employed, and who has demonstrated outstanding qualities of application, industry, and initiative in any of these fields of work.

Cogswell Scholarships.—Through the generosity of the trustees of the Cogswell Benevolent Trust of Manchester, 30 scholarships of \$100 each will be available to members of the Senior Class. These scholarships will be given to members of the class whose general record of scholarship, attainments, and conduct during the Freshman, Sophomore, and Junior years are adjudged by a committee of the Faculty to be most worthy. The committee will scrutinize closely the record of the Junior year, and will give weight not only to the general excellence of the scholarship record, but to growth and improvement as well.

Hood Scholarships.—Through the generosity of the Charles H. Hood Dairy Foundation, there are available to qualified students in the College of Agriculture, whose aims are set definitely to promote farming as a life opportunity, four scholarships of \$200 each. These scholarships are awarded to students who maintain high standards of scholastic excellence and strong character and, in case of competition, are assigned in preference to students who intend after graduation to take up work relating to farm milk production. Application should be made to the Dean, College of Agriculture.

George H. Williams Fund.—The income of the fund of \$9,900 bequeathed to the University by the late George H. Williams of Dover, N. H., shall be used to award scholarships to deserving and meritorious students of Dover. This income shall be divided into four annual

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scholarships of equal value. These scholarships, awarded for one year only and not renewable, will be granted to men and women students, residents of Dover, for either the Sophomore or Junior year. Eligibility shall depend upon character, meritorious scholarship, self-help, and evidence of financial need.

The Ordway Fund.—Through the bequest of Martha H. Ordway, of Hampstead, in 1934, the income from \$2,000 will be expended each year for the benefit of indigent students from Sandown or Hampstead, if any; otherwise for the benefit of other indigent students attending the University.

Charles H. Sanders Fund.—The income from a bequest of \$3,000 from the estate of Charles H. Sanders, Class of 1871, provides a scholarship in memory of the first class to be graduated from the University in 1871, consisting of William P. Ballard of Concord, Lewis Perkins, of Hampton, and Charles H. Sanders of Penacook. This scholarship will be awarded to a needy student who has completed four semesters' work and who has excelled in scholarship or has shown marked improvement in his scholastic achievement during his first four semesters at the University.

John N. Haines Scholarship.—The income from a fund of \$2,475 bequeathed by John N. Haines of Somersworth will be used to provide a scholarship for a deserving student of the University. Preference will be given to a student whose home is in Somersworth.

Harvey L. Boutwell Scholarship.—The income of a bequest of \$3,000 of the late Harvy L. Boutwell of Malden, Mass., Class of 1882, and member of the Board of Trustees from 1911 to 1929, provides a scholarship for a deserving student who would otherwise find it difficult to obtain a higher education. It will be awarded annually to a Massachusetts student, preference to be given to a resident of Malden, Mass. The determination of the award will be based on character, scholarship, self-help, and evidence of financial need.

Currier-Fisher Scholarship Fund of New Hampshire's Daughters.—The income of a gift of \$3,500 in 1938, supplemented by additional sums of \$2,520.50 from New Hampshire's Daughters, is to be used for educational purposes by New Hampshire girls attending the University.

Sears, Roebuck Agricultural Foundation Scholarships.—Through the generosity of Sears, Roebuck and Company, and in appreciation of the business received from the rural areas, several scholarships of approximately \$100 each have been available annually, since 1940, to *bona fide* farm boys who have given evidence of scholastic ability and who also need financial assistance to remain in college during the Sophomore year. Applications should be made to the Dean, College of Agriculture.

Georg Engelhardt Scholarships.—Two scholarships will be awarded

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annually to the highest ranking man and woman who have completed four semesters' work. The recipient of the scholarships will be chosen by a committee of the Faculty on the basis of need, scholarship, participation in extracurricular activities, leadership, and service as evidenced during the first four semesters of college. These scholarships were established in 1940 by President Fred Engelhardt in memory of his father, Georg John Engelhardt, and are valued at \$150 each.

Rosecrans W. Pillsbury Fund.—The income of a gift of Hon. R. W. Pillsbury of Londonderry, in 1903, is to be used to assist worthy students from the town of Londonderry.

Charles H. Wiggin Scholarship.—The income of a bequest of \$11,162.86 of Charles H. Wiggin, Malden, Massachusetts, in 1943, establishes a scholarship fund for the benefit of needy and worthy students.

Winifred E. Chesley Fund.—The income of a bequest of \$4,575 of the late Winifred E. Chesley, of Lee, in 1943, in memory of her father and mother, Irving Glass and Carrie Wiggin Chesley, is to be used to assist needy students from Lee or Newmarket.

Corinne H. Coburn Fund.—The income of a bequest of \$9,652.37 of Corinne H. Coburn of Exeter, in 1943, establishes a scholarship fund for the benefit of worthy students from Exeter.

The James A. Wellman Memorial Scholarship Fund.—The income of a fund of \$25,000, created in 1945 by Mrs. James A. Wellman, Mrs. Dorothy Wellman Burroughs, Helen Vincent Wellman, and Robert P. Burroughs, in memory of James A. Wellman of Manchester, N. H., a Trustee of the University from 1928 to 1944, will provide scholarships for worthy New Hampshire boys, preference being given to promising students from smaller towns or rural sections.

The Joseph L. Fearer Scholarship Fund.—The income from a fund of \$10,000, given by Joseph L. Fearer of the Class of 1931, to provide scholarship assistance to worthy students in the College of Technology.

The Sylvester M. Foster Fund.—The income of a gift of \$1,000, in 1944, of Sylvester M. Foster of Westport, Ct., of the Class of 1884, to provide assistance to a worthy Freshman.

The Roderick W. Smith Scholarship Fund.—The income from a gift of \$1,000 of Mr. and Mrs. Roderick W. Smith of Cranford, N. J., in memory of their son, Roderick Wheeler Smith, Jr., of the Class of 1945, who died in service in World War II, to be awarded to a worthy Freshman from Cranford or other New Jersey community.

Non-Resident Scholarships: To encourage attendance of exceptionally able students who are not residents of New Hampshire, the Board of Trustees has authorized a number of \$100 scholarships for such

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students. For 1946-47 there will be 50 of these scholarships. They are open to students in any class and may be granted from year to year, if the student's record justifies it. Financial need, as well as ability, will be considered in granting the scholarships. Applications must be filed by April 15.

STUDENT LOAN FUND

In order to assist needy students to continue their education, the University has established a Student Loan Fund. After proper investigation and approval by parents, loans may be granted to responsible students for tuition or other college expenses, except that Freshmen holding Tuition Grants may borrow in addition not in excess of \$25. These loans will bear interest at 2 per cent until graduation or withdrawal from the University, and 5 per cent after graduation or withdrawal and are payable as follows: \$5 a month beginning one year after graduation or withdrawal; \$10 a month beginning two years after graduation or withdrawal; \$15 a month beginning three years after graduation or withdrawal; and a like sum each month thereafter until principal and interest are paid.

The John H. Pearson Loan Fund.—In co-operation with the trustees of the John H. Pearson Trust, Concord, N. H., a student loan fund has been established, and is administered under the conditions governing the student loan funds of the University.

James B. Erskine Loan Fund.—In 1930, a bequest of Dr. James B. Erskine, of Tilton, provided a fund of \$10,084.50 for loans to students; loans to bear interest at the rate of 5 per cent until paid. This fund will be reserved for members of the Senior Class.

S. Morris Locke Loan Fund.—Through a bequest of the late Mary D. Carbee of Haverhill, N. H., a fund has been created for loan purposes in memory of Mr. and Mrs. S. Morris Locke. The fund now totals approximately \$22,000.

R. C. Bradley Loan Fund.—The New Hampshire Poultry Growers Association has established a loan fund for assistance to undergraduates who have been in attendance at the University at least two years, with preference given to Seniors. Loans are open only to students majoring in Poultry Husbandry in the College of Agriculture and are based on character, scholarship, and need of financial assistance. Applications made to the Committee on Student Aid are approved by that committee with the advice of a committee selected by the directors of the Poultry Growers Association.

Charlotte A. Thompson Loan Fund.—In 1940, a bequest of \$500 provided a fund for loans to students. Miss Thompson was librarian at the Durham Public Library from 1895 to 1907 and was a member of the University Library Staff from 1907 until her retirement in 1929.

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OTHER ASSISTANCE

Luella Pettee Fund.—During the year 1939-40, as a memorial to Mrs. Charles H. Pettee, her many friends subscribed to a fund, the income of which is to be used, upon approval of the Dean of Women, to assist directly by small gifts worthy women undergraduates in need of financial assistance. The fund totals \$1,883.

Frederick Smyth Book Fund.—The income of a bequest of \$2,000 in 1901 by Frederick Smyth, of Manchester, is applied to the purchase of books to be given annually to the most meritorious students.

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Bailey Prize.—To endow the prize formerly offered by C. H. Bailey, '79, and E. A. Bailey, '85, a fund is being created by winners of the prize, the income of which will continue the prize for proficiency in Chemistry.

The Katherine DeMeritt Memorial Prize.—Mrs. John T. Croghan (Margaret DeMeritt, Class of 1911) is the donor of a prize of \$25 in memory of her sister, Katherine DeMeritt, of the Class of 1908, continuing an award made by their mother, the late Dean Elizabeth P. DeMeritt. It is awarded to that Junior girl who, during her three years in college, has shown the greatest aptitude for helpful leadership and cheerful loyalty combined with strength of character and scholastic attainments.

Erskine Mason Memorial Prize.—Mrs. Erskine Mason, of Stamford, Conn., has provided \$100 as a memorial to her son, a member of the Class of 1893, the income of which is to be given to that Senior who is most distinguished for consistent progress and achievement.

Interscholastic Debating Prize.—The University of New Hampshire Debating League was reorganized in 1921, and is under the direction of the Instructor in Debating and Public Speaking in the University. Any secondary school of the state is eligible for membership. Preliminary contests are conducted at the schools, and a final contest is held at the University to determine the winner of the League. A prize cup is awarded in rotation to the winners. Other prizes, such as medals and certificates, are awarded to individual debaters from time to time.

Interscholastic Prize Speaking Contest.—This contest, for students of any accredited high school of the state (provided they have not already won the first prize in a previous year), was first held in May, 1912. Three prizes are provided by the University.

*In order to be announced at the Senior Convocation names of recipients of prizes and awards must be in the hands of the Commencement Committee on or before April 15.

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University Inter-Fraternity Scholarship Trophy for Men.—Through the generosity of Wilfred A. Osgood, '14, who has donated trophies for similar purposes in the past, a plaque has been given, and is to be awarded each year to that fraternity whose members have the highest scholastic standing as certified by the Recorder.

Diettrich Cup.—This cup was given by the Class of 1916 in memory of Rosina Martha Diettrich, a member of that class, who died a few weeks before graduation. The cup is to be awarded each year to the girl who attains the highest scholarship in her Junior year. The cup is to remain in her possession throughout her Senior year and until the next winner is named.

The American Legion Award.—The New Hampshire Department of the American Legion, as a mark of recognition of the University's contribution in the World Wars and as an expression of its interest in national defense, offers yearly a medal to that man in the Senior Class who has attained the highest distinction determined by achievement in military science, athletics, and scholarship. The name of the winner will be inscribed on a trophy. This trophy, made possible by the generosity of the American Legion of this state, is to remain in the permanent possession of the University.

Chi Omega Prize.—Mu Alpha Chapter of Chi Omega awards an annual prize of \$10 to the undergraduate woman student at the University who excels in the work of the Department of Sociology.

Class of 1899 Prize.—The Class of 1899 has given to the University a fund of \$500, the income to be used as a cash prize to be awarded "by the Faculty to the Senior who in their opinion has developed the highest ideals of good citizenship."

Phi Sigma Prize.—In order to promote research in the Biological Sciences the local chapter of the Phi Sigma National Honor Fraternity offers a prize of \$10 to be awarded annually to that Senior who offers most promise in research in Biology. The prize has been offered each year since 1921.

Phi Sigma Medal.—In order to promote high scholarship in Biological Sciences, the Phi Sigma National Honor Fraternity offers a medal to be awarded annually to that Senior who ranks highest in Biological courses throughout the entire four years of collegiate work. The amount of work-carried in Biology, together with the average grade in all other courses, shall be considered in making this award. It shall in no case be awarded to the recipient of the Phi Sigma prize. The medal was offered for the first time in 1938.

Hood Prizes.—Through the kindly interest and generosity of Charles H. Hood, of the Class of 1880, the income of funds given to the University in 1921 and in 1924 will be used for the encouragement, aid and benefit of deserving students.

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In accordance with the suggestion of the donor, for the present the income will be expended as follows:

First. *Hood Achievement Prize*.—A suitable medal will be awarded annually to that member of the Senior Class whom the members of the three upper classes choose as giving the greatest promise of becoming a worthy factor in the outside world through his character, scholarship, physical qualifications, personal popularity, leadership, and usefulness as a man among men.

Second. *Hood Dairy Prizes*.—A part of the Hood income will be devoted each year to paying a portion of the expenses of the members of a team or teams chosen for excellence in judging dairy cattle and sent to participate in intercollegiate or other dairy contests. Suitable medals will also be provided for the individual members of such teams

Third. *Hood Supplementary Bequest*.—The income from this bequest will be used for the purchase of a suitably inscribed trophy to become the property of the University. The names of the winners of prizes in dairy cattle judging are to be inscribed annually upon this trophy, which will thus serve as a permanent record to the institution of their skill and accomplishment.

Mask and Dagger Fund.—The income from a gift of \$4,900 from Mask and Dagger Society, in 1940, will perpetuate the annual prizes offered by the Society for the following purposes:

Mask and Dagger Achievement Prizes of \$25 each awarded each year to the three Seniors who, during their college courses, have made the most outstanding artistic contributions to the dramatic work of the University.

Fairchild Memorial Prizes, of \$25 each, in memory of Edward T. Fairchild, a former President of the University, awarded to the three Seniors who have done the most to promote dramatics during their four years at the University.

The Albert A. Charait Fund.—The income from a gift of \$1,000, in 1945, of Mrs. Charait, in memory of her husband, Lt. Albert A. Charait of the Class of 1942, who died in action while serving with the 507th Parachute Infantry in Germany, during World War II, to be awarded each year to a male student who writes the best short story.

Thomas J. Davis Prize.—By a gift of Thomas J. Davis, Duluth, Minn., a native and former resident of Durham, a fund has been provided for the establishment of dairy science prizes for competitive judging of dairy cattle by "short course students," excluding all four-year students, and allowing a suitable handicap in favor of students who are taking a course of not more than four months.

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Locke Prize.—The income of a trust fund of \$3,000 bequeathed by the late Mary D. Carbee of Haverhill, N. H., as a memorial to Mr. and Mrs. S. Morris Locke, will be awarded at the end of each year to that Junior majoring in Latin, who is adjudged by a committee of the Faculty to have excelled in the study of that language. In awarding the prize the committee shall give weight not only to the average grade in Latin, but also to the general record of scholarship, other attainments, and character.

Psi Lambda Award.—Psi Lambda, the Home Economics Club, each year awards a cup or other suitable evidence of achievement to the Home Economics Senior who has shown the greatest improvement in personality and scholarship during her four years in college.

Association of Women Students Award.—The Association of Women Students will award annually \$25 to the woman student who has proved to be of value to the women's student body, and who has shown by scholarship, self-help, leadership, and loyalty that she is worthy of this award.

Alpha Zeta Scholarship Cup.—A cup is awarded annually by the Granite chapter of the fraternity by Alpha Zeta to the Sophomore in the College of Agriculture who has made the highest scholastic average during his first three semesters' work. The winner will have his name engraved on the cup which will be on display in the Trophy Room.

General Chemistry Award.—The local chapter of Alpha Chi Sigma, professional Chemistry society, engraves each year on a trophy placed in Charles James Hall, the name of the Freshman who secures the highest average grade in Chemistry.

Phi Lambda Phi Award.—Phi Lambda Phi, Physics Honor Society, will award annually a prize of \$10 to a Senior who is most deserving, as revealed by proficiency in Physics and general scholarship.

The Wellman Trophy.—The Wellman Trophy, given by the late James A. Wellman, of Manchester, a Trustee of the University from 1928 to 1944, to stimulate and promote interest in Debating and Public Speaking, will be awarded annually at the end of his Junior year to that student who has shown excellence and continued improvement in speech. The element of improvement will be of first importance in judging the winner. The name of the winner will be engraved on the trophy which will be on display in the Trophy Room.

The Pan-Hellenic Scholarship Trophy.—A cup has been given to the University by the University of New Hampshire chapter of Pan-Hellenic to be awarded each year to the sorority whose members have maintained the highest scholastic standing during the preceding two semesters. This trophy, first awarded in 1933, remains in the possession of the sorority throughout the year and until the next winner is named.

PRIZES

The Mortar Board Scholarship Plaque.—The New Hampshire chapter of Mortar Board presented to the University, in 1941, a scholarship plaque on which will be engraved each year the name of the woman student of the Freshman Class of the preceding year who attained the highest academic average.

Alpha Xi Delta Plate.—A plate will be awarded annually by the Alpha Xi Delta Sorority to the Senior girl who proves herself to be the best athlete in her class. The plate will be awarded on consideration of the following qualifications: good sportsmanship, physical fitness, athletic achievements, and superior skill. The cup will be awarded by a board of judges including the members of the Department of Physical Education for Women, the President of the Association of Women Students, and the President of the Women's Athletic Association.

Pi Gamma Mu Medal.—Pi Gamma Mu, National Social Science Society, makes an annual award of its official scholarship medal to that graduating Senior who has the highest academic record in the Social Sciences. A minimum of 40 semester hours of work in the Social Sciences is required for consideration for the award.

FOUR-YEAR CURRICULUMS

COLLEGE OF AGRICULTURE

M. GALE EASTMAN, *Dean*

DEPARTMENTS

AGRICULTURAL AND BIOLOGICAL CHEMISTRY

AGRICULTURAL ECONOMICS

AGRICULTURAL ENGINEERING

AGRONOMY

ANIMAL HUSBANDRY

DAIRY HUSBANDRY

ENTOMOLOGY

FORESTRY

HORTICULTURE

POULTRY HUSBANDRY

GENERAL INFORMATION

The object of the Four-Year Curriculum of this College is to give a broad general education and thorough training in the basic sciences as well as to develop specific technical knowledge relating to the various phases of agriculture. To this end several subjects in the Colleges of Liberal Arts and Technology have been added to those provided by the College of Agriculture. The lecture and recitation work of the classroom in Agriculture is amply supplemented in all cases by practical exercises in the laboratories and about the farm. Seminars and discussion courses also are provided for Seniors or other advanced students.

Many of the graduates of the Four-Year Curriculum return to the farm for the purpose of putting into practice the knowledge and training gained in their college courses, and many of them have become successful and prosperous citizens of their communities; others, who have no farms of their own, accept salaried positions as superintendents or foremen on large dairy, fruit, stock, or poultry farms; still others take positions as teachers of science and agriculture in our secondary schools, or as assistants in agricultural colleges, experiment stations, or extension services; and, finally, an increasingly large number continue in specialized work, here or elsewhere, as candidates for graduate degrees.

When a student enters the College of Agriculture he is placed under the guidance of the Executive Advisory Committee. Previous to registration for the second semester the student will be given an opportunity to select his major field of study.

COLLEGE OF AGRICULTURE

When his major field has been selected, not later than at registration for the Sophomore year, he will be assigned to an adviser (or advisory committee), who will be responsible for approving his program of study until such time as he selects a new major, or until the Executive Advisory Committee changes the personnel of the Committee.

The major curriculums from which the Agricultural student may make his final choice follow: (Supplementing these, the College of Agriculture will be pleased to arrange courses of study for pre-theological, one-year or two-year pre-veterinary, and other students who desire a specialized program of study).

GENERAL AGRICULTURE

AGRICULTURAL AND BIOLOGICAL CHEMISTRY

AGRICULTURAL ECONOMICS

AGRICULTURAL ENGINEERING

AGRONOMY

ANIMAL HUSBANDRY

DAIRY HUSBANDRY

ENTOMOLOGY

FORESTRY

HORTICULTURE

POULTRY HUSBANDRY

PRE-VETERINARY

TEACHER PREPARATION

GENERAL REQUIREMENTS FOR DEGREES

Each candidate for a degree must complete 136 semester credits, including the courses prescribed by his adviser or advisory committee, in one of the major Four-Year Curriculums.

A student graduating from any of the Four-Year Curriculums may be required by his major department to have sufficient practical experience to enable the department to recommend the student for a position.

No student may graduate from the College of Agriculture without a specific recommendation from his major department.

Not later than the end of the first semester of the Senior year each candidate for a degree shall be given, under the direction of his major department, a comprehensive examination, a part of which shall be oral, on the four years of college work.

UNIVERSITY OF NEW HAMPSHIRE

SPECIFIC REQUIREMENTS FOR A DEGREE

During the Freshman year nearly all agricultural students pursue the same general outline of fundamental course work as listed below:

FRESHMAN YEAR

All Curriculums

	<i>First Semester Credits</i>	<i>Second Semester Credits</i>
Military Science, 1-2.....	1½	1½
Physical Education, 31, 32.....	1½	1½
Botany 1	4	
Chemistry 1, 2 or 3, 4 (General).....	4	4
Elective		3
English 1, 2.....	3	3
Mathematics 1, 2 or 5, 6.....	3-5	3-5
*Orientation 1.....	1	
Zoology 48.....		3
	<hr/> 17-19	<hr/> 18-20

Pre-Veterinary students should register for Biology 1-2 instead of Botany 1 and Zoölogy 48. Forestry majors specializing in Game Management will not take Zoölogy 48.

SOPHOMORE YEAR

All Curriculums

	<i>First Semester Credits</i>	<i>Second Semester Credits</i>
Military Science, 3-4.....	1½	1½
Physical Education 33, 34.....	1½	1½
Electives	15-18	15-18
	<hr/> 17-20	<hr/> 17-20

ADDITIONAL MINIMUM REQUIREMENTS

In order to complete the requirements for a degree from the College of Agriculture a student must obtain, in addition to the required Freshman work, credit in each of several areas. These minimum requirements covering the four years of study follow:

	<i>Semester Credits</i>
Biological Sciences (General Bact., Bot., Zool.).....	3
Chemistry (Agr. Chem., or Chem.).....	5
**Economics (Agri. Econ., or Econ.).....	6
English	5
Physics	4
Social Sciences (Gov't., Hist., Phil., Psy., Soc.).....	6
	<hr/>
Total	29

*See page 73 for a description of this course.

**At least 3 credits must be in Principles of Economics.

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NON-DEPARTMENTAL COURSE

Orientation 1. A non-departmental course having as its objective the consideration of topics not generally available to students in other courses of instruction. Attention will be given Campus organizations and facilities, adjustment from secondary to post-secondary study, use of the Library, and to Federal Aid and the services of Land-Grant institutions, the United States Department of Agriculture, and agricultural opportunities. Mr. Grinnell.

Required of all first-semester Freshmen in Agriculture, 1 lec.; 1 cr.

CURRICULUMS

GENERAL AGRICULTURE.—This Curriculum is offered for the student who wishes to secure a broad, general training in many important branches of agriculture without specializing unduly in any particular department. A more varied choice of subject matter is advised here than in the more specialized curriculums.

Students who expect to engage in farming will find this so-called General Curriculum, with its wide range of fundamental courses, a most profitable one. This Curriculum also prepares for Extension work like that of a county agent, a boys' and girls' club leader, or a marketing or farm management investigator. For those expecting to specialize later in graduate work, the broad foundation of fundamental subject matter made possible by this Curriculum should provide a desirable background.

AGRICULTURAL AND BIOLOGICAL CHEMISTRY.—Students majoring in this Curriculum receive training in the various branches of General Chemistry and in their application to the growth and development of plants and animals. The methods used in the chemical analysis of plants and agricultural products and in the study of animal nutrition and metabolism are given special attention. The Curriculum is designed to provide a thorough foundation for those expecting to prepare themselves for teaching and research in colleges and experiment stations or for technical positions in industries related to agriculture. A Freshman wishing to major in this Department should take Chemistry 3-4 and also Mathematics 5-6 if his high-school preparation is adequate.

As this is a professional and specialized field, entrance to it at the beginning of the Sophomore year, and continuance in it, are conditioned by a satisfactory record. An early conference with the Head of the Department is imperative.

AGRICULTURAL ECONOMICS.—Students wishing special undergraduate training in Agricultural Economics must select another field of study with which his economic training will be combined for a Four-Year

UNIVERSITY OF NEW HAMPSHIRE

Curriculum. The following combinations are suggested: Agronomy and Agricultural Economics, Dairy Husbandry and Agricultural Economics, Forestry and Agricultural Economics, Horticulture and Agricultural Economics, Poultry Husbandry and Agricultural Economics. In each instance, the student will be advised jointly by representatives of the two Departments concerned for planning a program of study.

AGRICULTURAL ENGINEERING.—Men with Agricultural Engineering training, added to a broad general agricultural background, will find many opportunities in industries related to, and commercial organizations serving, the farmers, in sales, service and maintenance work, as well as in actual farming. By pursuing advanced study many students in Agricultural Engineering can fit themselves for research and teaching positions or as engineers or assistants in Soil Conservation, Rural Electrification, or allied lines of endeavor.

The laboratories and class rooms for Agricultural Engineering are on the first and second floors of Pettee Hall. They provide facilities for the study of farm power units; farm machinery and equipment; farm mapping for drainage, irrigation and soil conservation practices; farm water supply and sanitation; rural electrical applications and other engineering problems related to agricultural development.

AGRONOMY.—Courses offered in this field provide a chance for the student to specialize in Soils or Field Crops.

Students who major in Soil Science may find employment in many specialized fields, such as Soil Physics, Soil Chemistry, Soil Microbiology, Soil Fertility, Soil Classification, and Soil Technology. Those who wish to specialize in crops will be trained to pursue work in Crop Production, Crop Improvement, Plant Breeding, and related fields. Men with a fundamental training in Soils and Crops are fitted to take Civil Service examinations to enter the Soil Conservation Service or other agencies in the Bureau of Plant Industry.

Positions in research and teaching, and in Extension work are also available to men trained in soils and crops, particularly if those who desire them pursue further study in agronomic fields. Seed, feed, and fertilizer companies are eager to employ men with a broad training in Agronomy.

A well-equipped soils laboratory is maintained and near-by soil types and profiles are available for study. A great variety of plant material is maintained for use in the crops and seed laboratories and in field nurseries.

ANIMAL HUSBANDRY.—This Curriculum is offered to students who wish a specialized training in the practical and intelligent management, selection, breeding, and feeding of livestock, including horses, beef and dual-purpose cattle, sheep, and swine. Special attention is

COLLEGE OF AGRICULTURE

given to studies which will prepare students for various lines of work, including the Extension Service, production and sales work with feed concerns and packing plants, and the management of estates and general livestock farms.

It also provides excellent preparation for graduate work in the various phases of Animal Husbandry as well as for Civil Service and other specialized lines.

Besides the various courses in Animal Husbandry, the student will normally take courses in Dairy Husbandry, Crops and Soils, Poultry, and Horticulture. In addition, he will receive enough fundamental and cultural subjects to give him a well-rounded training. However, outside of a few required courses, the work taken can vary widely to give the student training in line with his capabilities or inclinations.

Various anatomical models, charts, and lantern slides, and an up-to-date library are available for student use. Herd books of the most prominent breeds are available for pedigree work. Purebred Short-horn and Hereford cattle, Dorset and Shropshire sheep, Chester White swine, and Percheron horses are available for judging and management laboratories.

Students who expect to prepare themselves to study Veterinary Medicine should enroll in this Department where they will be under the guidance of the Veterinarian on the staff. Their work will be outlined so as to furnish the courses required for entrance into veterinary colleges.

DAIRY HUSBANDRY.—Students majoring in Dairy Husbandry are offered specialized courses in (1) Dairy Production and (2) Dairy Manufacturers. Training in Dairy Production will prepare students for the operation of modern dairy farms; for positions in Agricultural Extension and Breed Association work; and for field, sales, and technical positions in the Dairy Farm Equipment and Feed industry and for commercial dairy concerns.

Training in Dairy Manufacturers is particularly well suited to prepare students for executive and administrative positions in creamery and other dairy establishments. It also prepares for plant and laboratory positions in milk and milk-processing plants; and for inspectors of dairy products and dairy establishments in Federal, State and Municipal service.

Both of these fields offer a broad fundamental training for those intending to pursue graduate study in preparation for more specialized work in dairy and related industries.

The dairy herd on the Campus, together with the daily operations in the market milk pasteurizing and ice cream units at the Dairy Building, contribute to the practical training of students in any one of several lines of the dairy industry.

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The Dairy Husbandry laboratories located in the Dairy Building and in the Dairy Barn are well equipped for instructional purposes. The equipment includes power churn, power separator, pasteurizers, coolers, ice cream freezers, bottler, two mechanical refrigeration units, a homogenizer, and a soaker-type bottle washer. The milk testing and bacteriological laboratories are equipped for milk testing and inspecting, and for dairy bacteriological testing.

ENTOMOLOGY.—The Department of Entomology offers various courses for students who wish to specialize in the study of insects, insect life, and in the control of insects. Although the field of employment is limited, there are definite opportunities available to those who are qualified. The majority of these opportunities are in the public service, although commercial and industrial firms also employ college graduates who have specialized in this field.

Students desiring a broad fundamental training in Entomology and related fields will follow the program outlined as General Entomology. Those desiring to specialize in Chemical Control of insects, and who plan to take graduate work leading to a professional degree in that field, will follow a program to be outlined for Insect Toxicology. These students will be expected to take considerable Mathematics and Chemistry.

Students planning a career in Entomology are urged to consult with their adviser regarding the selection of electives best suited to their needs.

FORESTRY.—The training and instructional work in Forestry is intended to meet the needs of three classes of students: (1) those who wish to secure four years' training in Forestry; (2) those who wish to fit themselves for work in Game Management; and (3) those who desire a foundation for professional or graduate work in Forestry. All students take approximately the same program during the first two years, although it is necessary to make certain decisions rather early in the course. During the summer following their Sophomore year all foresters are required to attend an eight weeks' session of summer camp. Those who concentrate on Game Management will be required to spend an additional summer at camp, preferably at the end of their Junior Year. (See pages 43 and 218, 219.)

General Group.—This group includes those students who wish to secure a sound training in Forestry, but who do not care to spend more than four years in college. Considerable latitude is given in the courses which the student may elect, but his efforts are directed toward securing a good general education.

Game Management Group.—The Game Management Curriculum emphasizes this field while giving the student an adequate training in

COLLEGE OF AGRICULTURE

General Forestry. This combination is essential, as a large part of the country's wildlife program of the future will be handled by men employed primarily as Foresters.

Professional Group.—This program of study is designed to fit the student for advanced work at some other institution, where he will be able to satisfy the requirements for the degree of Master of Forestry in one year. Students who plan to enter the United States Forest Service, to become teachers, research workers, or Consulting Foresters, should elect this course. The requirements, however, are high, and only the best students will be encouraged to undertake it.

HORTICULTURE.—Conditions of climate, soil, and market combine to make New Hampshire a state with great future horticultural possibilities. Accordingly, the Department of Horticulture, with its excellent facilities and staff, offers instruction in three major fields, Pomology (fruit growing), Olericulture (vegetable growing), and Ornamental Horticulture with particular emphasis on Floriculture, Propagation, and Greenhouse Management.

Students who graduate with a major in Horticulture will have received the liberal training expected of a university graduate, a thorough preparation in the fundamental sciences underlying all intelligent plant production, adequate training in General Horticulture, and, finally, specialization in the field chosen. Probably few students in Horticulture should take exactly the same courses after the Sophomore year. The courses are designed to fit the student for intelligent and resourceful improvement, production, and marketing of fruits, vegetables, plants, or flowers. The training is such that superior students who wish that type of work can pass the Civil Service examinations required for entrance into positions with the United States Department of Agriculture. Such students may also find positions in research, teaching, or extension connected with agricultural colleges, although it is generally expected that they will take graduate work if they intend to enter this professional field. In the past, good New Hampshire graduates have had little difficulty in securing fellowships or scholarships in other colleges and universities.

Major students in the Department must elect a minimum of 11 semester credits in Advanced Horticulture and related courses, in addition to Hort. 2, 13, 91, 92, and 94, required of all majors. A special effort is made to see that outside work during the college year and work done during the vacation periods will provide sufficient practical experience before a student graduates, so that he has more than a theoretical knowledge of his profession. The extensive University orchards, gardens, and greenhouses are used as laboratories.

POULTRY HUSBANDRY.—The Curriculum in Poultry Husbandry has been designed to offer students fundamental and special training in the practical and professional fields of Poultry.

UNIVERSITY OF NEW HAMPSHIRE

The program of study prepares students for various lines of work such as: production, sales, and service with feed and equipment manufacturing concerns; marketing organizations, handling poultry and eggs; commercial hatcheries; poultry-farm managers, as well as for the operation of their own farms. By supplementing his undergraduate work with one or more years of graduate study, superior students will find opportunities in the professional fields of teaching, extension, and research.

Major students are expected to take all courses offered in the Department. In addition, selected courses in other departments of the College are required in support of, and as a supplement to, the instruction given in the Department. However, the student elects these courses under guidance and considerable latitude is offered. Special attention is given to the interests and ability of each student.

The Department works closely with the poultry industry in the state. This industry ranks high among those in the country. In this connection, frequent and full discussion is given in the classroom to broad problems of the industry.

A brief but comprehensive period of practical work is offered for those who lack sufficient experience in the actual care and production of chicks and laying birds. All of the facilities of the University Plant are available for such students. This plant is stocked with both chickens and turkeys, and has modern equipment for carrying on its work.

PRE-VETERINARY CURRICULUM.—Students contemplating veterinary medicine as a career should elect the Pre-Veterinary Curriculum. Successful completion of this Curriculum will meet the scholastic requirements for admission to an approved veterinary college. However, all veterinary colleges give first preference for admission to applicants from their respective states. The current number of applications for admission is tremendous. Those few out-of-state students who may be fortunate enough to be admitted will necessarily have shown outstanding scholastic ability.

Although one to two years of Pre-Veterinary training will meet the requirements of most veterinary colleges, it is desirable that a person spend four years in Pre-Veterinary work and complete the requirements for the Bachelor's degree.

TEACHER PREPARATION.—Under the provisions of the Smith-Hughes Act, the University of New Hampshire has been designated as the institution in this state for the preparation of Teachers of Agriculture. Vocational Agriculture offers a fertile field for young men desirous of following the profession of teaching. The work is varied and interesting with opportunities for wide community contacts through the all-day, part-time, and evening school programs.

COLLEGE OF AGRICULTURE

Agricultural teachers are encouraged to enter upon a program of graduate study as a means of professional growth. Successful completion of such study should result in greater opportunities for advancement in the field of Agricultural education.

Due to the nature of the duties performed by the teacher of Agriculture it is essential that the student get a good foundation in all of the predominating agricultural enterprises of the state. His course of study, therefore, will follow a broad general program rather than a specialization in any one particular field. Furthermore, he must meet the state requirements for certification which includes one semester of practice teaching, 8 additional credits of courses in Education and 8 credits of Agricultural Engineering.

SUGGESTED PROGRAMS

Except for minor variations, the required Freshman program is applicable to all agricultural students who are candidates for a degree. Military Science and Physical Education, which are *general curriculum requirements*, should be completed by the end of the Sophomore Year. "Additional Minimum Requirements" may be satisfied at any time prior to graduation but should be kept in mind when planning a schedule of courses for each semester during the Sophomore, Junior and Senior years. Beyond the Freshman program, the General Curriculum Requirements of the University, and the additional minimum requirements of the Agricultural College, a student will select the remainder of his program in consultation with his curriculum supervisor.

The following Curriculums suggest a plan of study applicable to most students, but are not intended as a list of required courses. It is assumed that the program will vary according to the needs of the individual student. It should be remembered that a student must complete an average of 17 credits per semester in order to accumulate a total of 136 credits in four academic years.

GENERAL AGRICULTURE

Students should elect Horticulture 2, Plant Propagation, for the second semester of the Freshman year.

	First Semester Credits	Second Semester Credits
SOPHOMORE YEAR		
Agr. Chem. 1, Organic and Biological	5	
Agron. 1, 4, Soils, Fertilizers and Soil Fertility	3	3
D. H. 6, Fundamentals of Dairying		3
Econ. 1, Principles	3	
Phys. 4, Elements		4
P. H. 2, Farm Poultry		3

UNIVERSITY OF NEW HAMPSHIRE

JUNIOR YEAR

Agr. Eng. 5, 6, Basic Applications	2	2
A. H. 11, 2, Judging, Types and Market Classes	1	3
A. H. 13, Feeds and Feeding	3	
D. H. 33, 34, Cattle and Products Judging	1	1
Ent. 41, Insects of Orchard and Garden	3	
Hort. 14, Vegetable Gardening		3
Zool. 49, Genetics	2	

SENIOR YEAR

Agr. Econ. 14, Farm Management		3
Agron. 20, Forage and Pasture Crops		3
D. H. 64, Milk Production		3
Eng. 35, (41), Public Speaking, Expository Writing ..	3	2
Hort. 53, Orchard Fruits	3	

AGRICULTURAL AND BIOLOGICAL CHEMISTRY

The following program of study assumes the completion in the Freshman year of mathematics sufficient to serve as the prerequisite to calculus. Otherwise, additional mathematics would need to be included. Chemistry 3-4 is preferred to Chemistry 1-2 for Freshmen.

	<i>First Semester Credits</i>	<i>Second Semester Credits</i>
SOPHOMORE YEAR		
Agron. 1, 4, Soils, Fertilizers and Soil Fertility	3	3
Bact. 1, General Bacteriology	4	
Bact. 2, Food and Sanitary Bacteriology		4
Chem. 21, Semi-micro Qualitative Analysis	4	
Chem. 22, Quantitative Analysis		5
Math. 7-8, Calculus	3	3
JUNIOR YEAR		
Chem. 47-48, Organic Chemistry	5	5
Econs. 1-2, Principles of Economics	3	3
Lang. 1-2, French or German	3	3
Phys. 5-6, Pre-Medical Physics	5	5
SENIOR YEAR		
Agr. Chem. 51-52, Physiological Chemistry	5	5
Agr. Chem. 53-54, Agricultural Analysis	4	4
Eng. 35, Public Speaking	3	
Eng. 23, Writing Technical Reports		2

AGRICULTURAL ECONOMICS

Students interested in specializing in Agricultural Economics will select a combination of Agricultural Economics and one of the following fields: Agronomy, Dairy Husbandry, Forestry, Horticulture, Poultry Husbandry or General Economics. In each instance the student will be advised by representatives of the two departments concerned for planning a program of study. The following is suggested for the Agricultural Economic phase of study.

COLLEGE OF AGRICULTURE

	<i>First Semester Credits</i>	<i>Second Semester Credits</i>
SOPHOMORE YEAR		
Econs. 1-2 Principles	3	3
JUNIOR YEAR		
Agr. Econs. 11, Economics of the Agricultural Industry	3	
Eng. 7-8, Advanced Composition	3	3
Math. 61-62, Introduction to Statistical Methods	3	3
SENIOR YEAR		
Agr. Econs. 14, Farm Management		3
Agr. Econs. 52, Cooperative Business		3
Agr. Econs. 53, Agricultural Prices	3	
Agr. Econs. 54, Agricultural Policy		3

AGRICULTURAL ENGINEERING

Students interested in advanced work in Agricultural Engineering should take Mathematics 5-6 in the Freshman year, and Physics 1-2 in Sophomore year.

	<i>First Semester Credits</i>	<i>Second Semester Credits</i>
SOPHOMORE YEAR		
Agr. Chem. 1, Organic and Biological	5	
Agr. Eng. 5-6, Basic Applications	2	2
Agr. Eng. 17-18, Farm Shop	2	2
Agron. 1, 4, Soils, Fertilizers and Soil Fertility	3	3
Econs. 1, Principles	3	
Hort. 2, Plant Propagation		2
JUNIOR YEAR		
Agr. Eng. 22, Farm Power Applications		2
Agr. Eng. 24, Farm Structures		2
Agron. 10, Crop Production		3
A. H. 11, Livestock Judging	1	
Bact. 3, Elements of Microbiology	3	
D. H. 6, Fundamentals of Dairying		3
Engl. 35, Public Speaking	3	
For. 1, Management of Farm Woodlands	3	
Hort. 14, Vegetable Gardening		3
Hort. 53, Pomology	3	
P. H. 2, Farm Poultry		3
SENIOR YEAR		
Agr. Eco. 14, Farm Management		3
Agr. Eng. 23, Farm Machinery and Equipment	2	
Agron. 58, Soil Classification and Mapping		3
Agron. 60, Soil Conservation		3
Agron. 77, Seminar	2	
A. H. 13, Feeds and Feeding	3	
D. H. 33, Dairy Cattle Judging	1	
Eng. 23, Writing Technical Reports	2	

UNIVERSITY OF NEW HAMPSHIRE

AGRONOMY

	<i>First Semester Credits</i>	<i>Second Semester Credits</i>
SOPHOMORE YEAR		
Agr. Chem. 1, Organic and Biological Chemistry	5	
Agron. 1, Soils	3	
Agron. 4, Fertilizers and Soil Fertility		3
Agron. 10, Crop Production		3
Agr. Eng., 5-6, Basic Applications	2	2
Econs. 1, Principles	3	
Phys. 4, Elements		4
JUNIOR YEAR		
Agron. 18, Potatoes and Cereal Crops		3
Agron. 57, Soil Physics	3	
Bact. 3, Elements of Microbiology	3	
Bot. 51, Plant Pathology	3	
Bot. 4, Plant Physiology		4
Eng. 35, Public Speaking		3
Zool. 49, Genetics	2	
SENIOR YEAR		
Agron. 20, Forage and Pasture Crops		3
Agron. 59, Soil Chemistry	3	
Agron. 60, Soil Conservation		3
Agron. 71-72, Agronomy Seminar	1-3	1-3
Eng. 23, Writing Technical Reports	2	

The Agronomy program will vary considerably according to whether or not the student wishes to emphasize soils, crops, or erosion and conservation.

ANIMAL HUSBANDRY

	<i>First Semester Credits</i>	<i>Second Semester Credits</i>
SOPHOMORE YEAR		
Agr. Chem. 1, Organic and Biological Chemistry	5	
Agr. Chem. 4, Animal Nutrition		3
Agr. Eng. 5-6, Basic Applications	2	2
Agron. 1, 10, Soils, Crop Production	3	3
Econs. 1-2, Principles	3	3
D. H. 33, 36, Dairy Cattle Judging	1	1
Phys. 4, Elements		4
JUNIOR YEAR		
A. H. 11, 14, Livestock Judging	1	1
A. H. 13, Feeds and Feeding	3	
A. H. 15, 16, Systematic Anatomy, Animal Diseases ..	3	3
A. H. 18, Meat Products and Livestock Markets		2
Bact. 1, General	4	
Eng. 35, Public Speaking		3
Zool. 49, Genetics	2	
SENIOR YEAR		
A. H. 19, 20, Horses and Beef Cattle, Sheep and Swine	3	3
A. H. 51, 52, Animal Breeding, Seminar	3	1-3
D. H. 23, Dairy Cattle	3	
D. H. 64, Milk Production		3
D. H. 65, Market Milk	3	
Eng. 41, Expository Writing		2

COLLEGE OF AGRICULTURE

DAIRY HUSBANDRY

	<i>First Semester Credits</i>	<i>Second Semester Credits</i>
SOPHOMORE YEAR		
Agr. Chem. 1, 4, Organic, Animal Nutrition	5	3
Agr. Eng. 5, 6, Basic Applications	2	2
Agron. 1, Soils	3	
A. H. 11, 2, Livestock Judging, Types and Breeds	1	3
D. H. 33-34, Dairy Cattle and Products Judging	1	1
Econ. 1-2, Principles	3	3
Phys. 4, Elements		4
JUNIOR YEAR		
Agr. Econ. 7, Farm Accounting	3	
Agron. 4, Fertilizers and Soil Fertility		3
A. H. 13, Feeds and Feeding	3	
A. H. 15, 16, Anatomy, Animal Diseases	3	3
Bact. 1, General	4	
D. H. 27, 30, Butter and Cheese, Dairy Bacteriology ...	2	4
D. H. 36, Advanced Judging		1
Eng. 35, Public Speaking		3
Zool. 49, Genetics	2	
SENIOR YEAR		
Agr. Econ. 14, Farm Management		3
Agr. Econ. 52, Cooperative Business		3
Agron. 20, Forage and Pasture Crops		3
A. H. 51, Animal Breeding	3	
D. H. 23, 62, Dairy Cattle, Advanced Dairy Science	3	2
D. H. 60, Seminar		2
D. H. 65, 64, Market Milk, Milk Production	3	3
Eng. 23, Writing Technical Reports	2	

For students interested in Dairy Manufacturing, the program of study will substitute courses in Business Administration for many of the production courses listed above.

ENTOMOLOGY

	<i>First Semester Credits</i>	<i>Second Semester Credits</i>
SOPHOMORE YEAR		
Agr. Chem. 1, 2, Organic, Plant Chemistry	5	3
Econs. 1-2, Principles	3	3
Ent. 41, Insects of Orchard and Garden	3	
Phys. 4, Elements		4
Zool. 7-8, General	4	4
JUNIOR YEAR		
Bact. 3, Elements of Microbiology	3	
Bot. 6, Systematic		3
Eng. (35), Public Speaking		3
Eng. 7, 8, Advanced Composition	3	3
Ent. 55, 56, Household Insects, Forest Insects	2	2
Ent. 57-58, Advanced	4	4
Zool. 49, Genetics	2	
Zool. 55, Invertebrate	4	
SENIOR YEAR		
Bot. 51, 56, Plant Pathology, Plant Physiology	3	4
Eng. 23, Writing Technical Reports	2	
Ent. 54, Medical		3
Ent. 59, 60, Advanced Economic	3	3
Lang. 1-2, French or German	3	3

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Students interested in Insect Toxicology will follow the same general program of study except that they will complete additional courses in Mathematics and Chemistry selected in consultation with an adviser.

FORESTRY

	<i>First Semester Credits</i>	<i>Second Semester Credits</i>
SOPHOMORE YEAR		
Agr. Chem. 1, 2, Organic and Biological, Plant	5	3
Agron. 1, Soils	3	
Econs. 1, Principles	3	
Ent. 2, Elementary		3
For. 3-4, Practice	1	1
For. 29-30, Silviculture	3	3
Phys. 4, Elements		4
SUMMER CAMP		
For. 42, Forest Mensuration, 10 crs.		
JUNIOR YEAR		
Bot. 51, 56, Plant Pathology, Plant Physiology	3	4
Eng. 35, Public Speaking	3	
Ent. 56, Forest Insects		2
For. 5-6, Practice	1	1
For. 26, Wood Identification		3
For. 33, Protection	3	
Met. 1, Weather	2	
SUMMER CAMP		
For. 21 or 41, Ecology or Fish and Game, 10 crs.		
SENIOR YEAR		
Agr. Econs. 11, Agricultural Industry	3	
Eng. 41, Expository Writing		2
For. 7-8 Practice	1	1
For. 39-40, Forest Management	4	4

The program suggested for students interested in Game Management will vary somewhat from that suggested for General Forestry as shown above, particularly during the Sophomore and Junior years.

HORTICULTURE

	<i>First Semester Credits</i>	<i>Second Semester Credits</i>
SOPHOMORE YEAR		
Agr. Chem. 1, 2, Organic, Plant	5	3
Agron. 1, 4, Soils, Fertilizers	3	3
Econs. 1, Principles	3	
Ent. 41, Insects of Orchard and Garden	3	
Hort. 13, Judging	2	
Phys. 4, Elements		4
JUNIOR YEAR		
Bact. 3, Elements of Microbiology	3	
Bot. 51, 56, Plant Pathology, Plant Physiology	3	4
Hort. 94, Plant Breeding		3
Eng. 35, Public Speaking	2	
Zool. 49, Genetics	2	
SENIOR YEAR		
Agr. Econs. 14, Farm Management		3
Eng. 23, Writing Technical Reports	2	
Hort. 91-92, Seminar	1	1

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Each student will select 16 additional credits in Horticulture according to his major interests. The following are suggested as desirable electives offered by other departments:

Acctg. 1-2, Elementary	Bot. 6, Systematic
Agr. Eng. 6, Basic Applications	Econs. 6, Principles of Business
Agron. 10, Crop Production	Eng. 9-10, News Writing
Arts 39, Elementary Photography	Geol. 7, General
Bot. 3, Plant World	Met. 1, Weather
Arts 23, Elementary Drawing and Designs	

POULTRY HUSBANDRY

	<i>First Semester Credits</i>	<i>Second Semester Credits</i>
SOPHOMORE YEAR		
Agr. Chem. 1, 4, Organic, Animal Nutrition	5	3
Agron. 1, Soils	3	
Econ. 1, Principles	3	
Phys. 4, Elements		4
JUNIOR YEAR		
Agr. Econ. 7, Farm Accounting	3	
Bact. 3, Elements of Microbiology	3	
P. H. 6, Feeding		3
P. H. 17, 8, Breeds and Judging, Housing	3	2
P. H. 19, 18, Marketing, Incubation and Brooding	3	3
Zool. 49, Genetics	2	
SENIOR YEAR		
Eng. 23, (35), Writing Technical Reports, Public Speaking	2	3
P. H. 25, 26, Diseases, Management	4	3
P. H. 27, 28, Seminar	1	1
P. H. 29, Breeding	2	
P. H. 53, 54, Problems	arr.	arr.

PRE-VETERINARY

In the Freshman year, Pre-Veterinary majors will substitute Biology 1-2 for Botany 1 and Zoölogy 48, and will take Chemistry 3-4 as a prerequisite for more advanced Chemistry in subsequent years. Mathematics 5-6 is preferred but not required. The program of study is so arranged that the student will meet the course requirements of most veterinary colleges at the end of the Sophomore year.

	<i>First Semester Credits</i>	<i>Second Semester Credits</i>
SOPHOMORE YEAR		
Chem. 53-54, Organic	5	5
Phys. 1-2, Introductory	4	4
Soc. 1, 2, Principles, Social Psychology	3	3
Zool. 7-8, General	4	4
JUNIOR YEAR		
A. H. 13, 2, Feeds and Feeding, Types	3	3
A. H. 11, 18, Judging, Meat Products	1	2
Bact. 1, 2, General, Food and Sanitary	4	4
D. H. 64, Milk Production		3
Econs. 1-2, Principles	3	3
Eng. 23, (35) Writing Technical Reports, Public Speaking	3	2
Zool. 49, Genetics	2	

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SENIOR YEAR

A. H. 19, 20, Horses and Beef Cattle, Sheep and Swine	3	3
Bact. 53, 8, Immunology and Sirology, Pathogenic	4	4
Eng. 7-8, Advanced Composition	3	3
Govt. 3-4, American Government	3	3

TEACHER PREPARATION

	<i>First Semester Credits</i>	<i>Second Semester Credits</i>
SOPHOMORE YEAR		
Agr. Chem. 1, Organic and Biological	5	
Agr. Eng. 5, 6, Basic Applications	2	2
Agr. Eng. 17, 18, Farm Shop	2	2
Agr. Eng. 22, Farm Power		2
Agron. 1, 4, Soils, Fertilizers and Soil Fertility	3	3
Econs. 1, Principles	3	
Ent. 41, Insects of Orchard and Garden	3	
Phys. 4, Elements		4
P. H. 2, Farm Poultry		3
JUNIOR YEAR		
Agr. Econ. 7, 52, Accounting, Co-operative Business	3	3
Agr. Eng. 23, Farm Equipment and Machinery	2	
Agron. 10, Crop Production		3
A. H. 13, Feeds and Feeding	3	
Educ. 42, Psychology of Adolescence		3
Educ. 52, American Secondary Education		3
Eng. 23, Writing Technical Reports	2	
Hort. 53, 14, Orchard Fruits, Vegetable Gardening	3	3
Educ. 92, Agriculture-Education		3
Eng. 35, Public Speaking	3	
SENIOR YEAR		
Agr. Econ. 14, Farm Management		3
Agr. Eng. 24, Farm Structures		2
Agron. 20, Forage and Pasture Crops		3
Educ. (45), School Law		2
Educ. 99, Supervised Teaching	17	

THE APPLIED FARMING COURSE

A TWO-YEAR, NON-DEGREE CURRICULUM

For one reason or another many young people find it unfeasible to attend the College of Agriculture for four years as a candidate for an academic degree. The Applied Farming Course at the University of New Hampshire offers to such young men and women who are interested in farming and allied occupations the opportunity to secure scientific and practical agricultural training in two years of study. This vocational course is designed particularly for those who wish to become farmers or to seek employment in related activities. Some of the more common types of opportunities available for the two-year student follow:

Farming—owner, renter, operator
Farm Manager or estate superintendent

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Herdsman or assistant
Milk plant operator or assistant
Poultry plant foreman
Feed and fertilizer store operator or assistant
Greenhouse or landscape work
Skilled worker for nurserymen and seedsmen
Farm machinery worker—sales, service, or operation
Worker in retail agricultural marketing
Milk testers
Caretaker of estate
Superintendent, foreman or worker in parks
Worker in a commercial dairy manufacturing and distributing plant

Admission Requirements

The Applied Farming Course is open to both young men and young women. Graduates of high schools will be admitted irrespective of age. Applicants who are not high school graduates must be eighteen years of age and must have had at least two years of high school work or its equivalent. Judgment and understanding will be carefully considered in determining those who will be admitted. A farm background, though not required, will prove exceptionally valuable.

Requirements for Graduation

The Applied Farming Course requires two full years for completion of instruction. It is possible, however, for persons to come for only one, two, or three semesters and yet gain a great deal of first-hand, valuable information, even though they do not see their way clear to complete the full course. Upon satisfactory completion of two full years of instruction with a minimum of 60 semester credits, a certificate of graduation will be awarded.

In addition to intensive training on Campus, students are required each year to complete a supervised placement program, adapted to the interests of the individual. This practical experience is under the direct supervision of the Applied Farming staff.

Major Fields of Instruction

There are four major fields of instruction available: Dairying, General Farming, Horticulture, and Poultry. The student will select the one he wishes to pursue and may elect courses in other fields in order to provide for a well-balanced program.

Facilities for Instruction

Facilities of the University including the College Farm, Dairy Herd, Milk Plant, Poultry Plant, Horticultural Farm, Livestock Department, greenhouses, and laboratories are available for instructional purposes.

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Student Aid

Employment is usually available for the student who needs it and is willing to work. Tuition Grants amounting to approximately one half the tuition are available in limited numbers for residents of New Hampshire. These Tuition Grants will be awarded to such applicants as appear on investigation to be needy and deserving. It is hoped that every worthy individual who could not otherwise attend may be helped in this way. However, these funds are by no means inexhaustible and prospective needy students are urged to apply early.

Requests for Information

Persons interested in the Applied Farming Course should write for a complete descriptive catalogue. Such requests should be made to the Applied Farming Course, 6 Morrill Hall, University of New Hampshire, Durham, New Hampshire.

COLLEGE OF LIBERAL ARTS

EDWARD Y. BLEWETT, *Dean*

DEPARTMENTS

ARTS

*Fine Arts, Design, Handicraft,
Occupational Therapy, and
Photography*

BIOLOGY

*Bacteriology, Biology, Botany,
Zoölogy, Nursing, Pre-Medi-
cine, and Pre-Dentistry*

ECONOMICS AND BUSINESS ADMINISTRATION

*Business, Economics, and Sec-
retarial Studies*

EDUCATION

ENGLISH

GEOLOGY

*Geology, Geography, and Mete-
orology*

GOVERNMENT

Government and Pre-Law

HISTORY

HOME ECONOMICS

*Home Economics, Hospital Die-
tetics, and Institutional Manage-
ment*

HOTEL ADMINISTRATION

LANGUAGES

*French, German, Greek, Latin,
and Spanish*

MUSIC

PHILOSOPHY

PSYCHOLOGY

SOCIOLOGY

Sociology and Social Service

The Departments of Chemistry, Mathematics, and Physics in the College of Technology, and the Department of Entomology in the College of Agriculture, also offer major programs for students in the College of Liberal Arts.

PURPOSE AND OBJECTIVES

The College of Liberal Arts exists to serve society through meeting the vital educational needs of students on the Campus or in the state. While it prepares some students for scholarly achievement in graduate and professional schools and trains others for immediate gainful service, it develops in all of its students understanding, interests, appreciations, and abilities which make possible the living of a richer and more satisfying life.

It is the purpose of the College of Liberal Arts to help all its students to become better adjusted to the world in which they live, to increase

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their efficiency as students, to learn how to work and to enjoy work as well as leisure, to solve their college and life problems, and to prepare themselves for intelligent participation in the activities of modern life as socially competent human beings willing to meet their responsibilities to society.

To accomplish its general educational purpose, the College of Liberal Arts co-operates with its students in their efforts to acquire:

(1) The ability to understand and use language, particularly English, for clear and effective interchange of ideas;

(2) An understanding and appreciation of the principles of the physical and biological sciences as they apply to man;

(3) An understanding of the principles underlying the social, psychological, political, and economic activities of man;

(4) An understanding and appreciation of all peoples and their cultures, both contemporary and historical, for intelligent participation in society;

(5) An understanding and appreciation of literature and the other arts;

(6) An understanding and appreciation of the religious heritage of man and its significance for present-day living;

(7) An understanding of personal and community health;

(8) An understanding of the interrelation of the various fields of knowledge;

(9) A competence in a selected field of knowledge, based on a concentration of studies for vocational or other interests;

(10) Aid in selecting and preparing for a suitable profession or vocation;

(11) A variety of interests outside of the selected field of knowledge, for the purpose of providing avocations or occupations for leisure time in post-college days;

(12) An eagerness for knowledge as a means to continuous self-education;

(13) The ability to seek, discover, and analyze data and therefrom make valid generalizations;

(14) The ability to form unbiased and rational judgments of other individuals and their ideas;

(15) The desire to discover and accept responsibilities, for the improvement of human living;

(16) Principles and convictions about life which may change as experience increases, and upon which their whole conduct shall be founded.

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ORGANIZATION

The development of common interests and the co-ordination of educational efforts in behalf of students in the College are promoted by Divisional Groups, as follows: Humanities, Social Sciences, Physical Sciences, Biological Sciences, Home and Institutional Management, and the Division of Teacher Education. The personnel of each divisional group includes all Faculty members assigned to departments of the College, and to departments of other colleges which are authorized to offer major programs or prescribed curriculums in the College of Liberal Arts.

The Humanities Divisional Group is composed of the staffs of the Departments of Arts, English, Languages, Philosophy, and Music. The Social Science Divisional Group is composed of the staffs of the Departments of Economics and Business Administration, History, Government, Psychology and Sociology. The Physical Science Divisional Group is composed of the staffs of the Department of Geology, and the Departments of Chemistry, Mathematics and Physics in the College of Technology. The Biological Science Divisional Group is composed of the staffs of the Department of Biology, and the Department of Entomology in the College of Agriculture. The Home and Institutional Management Divisional Group is composed of the staffs in Home Economics and Hotel Administration. The Division of Teacher Education consists of the members of the instructional staff of the University who are teaching professional courses in Education. These include courses in the problems of teaching the subjects taught in the public schools and the courses in Physical Education, and in the Arts, and are designed to prepare teachers and supervisors.

The offerings of the College of Liberal Arts are divided into two groups: the General Liberal Arts Curriculum and the Prescribed Curriculums. The University Teacher Preparation Curriculums are described on pages 123-129.

THE GENERAL LIBERAL ARTS CURRICULUM

The General Liberal Arts Curriculum is intended primarily to give opportunity for a broad, liberal program, a general education leading to the B.A. or B.S. Degree.

A student enrolled in the General Liberal Arts Curriculum will major in some subject or field of knowledge. Some of these major programs offer, at least in part, direct vocational training. The *General Liberal Arts Curriculum* must not be confused with the *Prescribed Curriculums*. The latter are essentially vocational in character.

The objectives, opportunities, and requirements of majors in the General Liberal Arts Curriculum are described in the paragraphs

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which follow. It is possible, also, for students in the General Liberal Arts Curriculum to arrange programs of study in addition to those described below, although such students will be held strictly to the University and College requirements of the General Liberal Arts Curriculum. Students interested in arranging special programs of study should consult the Dean of the College.

The Arts

The courses in this Department are designed to develop intelligent enjoyment and a critical understanding of art, and to provide facilities for creative expression.

Several types of programs may be arranged for individual students. For some who have special creative abilities there are courses in Painting, Sculpture, Ceramics, Pictorial Photography, and Design. For others interested primarily in the application of art to business and industry, there is opportunity for study in Industrial Design, Advertising Art, Photography, Interior Decoration, and Costume Construction and Design. The Department also offers opportunity to all interested particularly in the critical appreciation of art.

Students majoring in those other areas in which a knowledge of art is desirable, such as Business, Education, and Hotel Administration, should consider taking one or several courses in the Arts.

Students interested in teaching Art in the secondary schools are advised to consult the Art Education Curriculum (see page 146).

Students majoring in the Arts are expected to meet in full the requirements of the General Liberal Arts Curriculum which are set forth on page 133. They must also earn 24 semester credits, with grades C or better, in courses in the Arts. The following courses are required for Arts majors: Arts 23, Elementary Drawing and Design (does not carry major credit); 31, 32, Introduction to the Arts. Courses in Dramatics, Literature, Music and in the Social Sciences may be approved as related work for a major in the Arts with the consent of the supervisor. The courses of each major program are selected to meet the needs of the individual student, as determined by the student and his Supervisor in personal conference.

Students interested in majoring in the Arts are advised to consult with the Supervisor, Professor G. R. Thomas, Room 304, DeMeritt Hall.

Bacteriology

Students interested in the study of bacteria and related micro-organisms should register as majors in Bacteriology. Such students may prepare themselves for positions with state, city, and private hospital laboratories or with university, experiment station, public health, and

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industrial organizations. The program is arranged to meet the needs of two groups of majors; i.e., those who plan to obtain employment as laboratory technicians after receiving the B.S. degree and those who plan to take graduate work in Bacteriology, which is necessary for advancement and preferred employment in the field.

Students who major in Bacteriology are expected to meet in full the requirements of the General Liberal Arts Curriculum which are set forth on page 133. They are expected also to complete courses offered by the Department, and by related departments, to a total of 24 semester credits, with grades of C or better. A course in Organic Chemistry is also required for Bacteriology majors but cannot be counted as part of these 24 major credits. The courses of each major program are selected to meet the needs of the individual student, as determined by the student and his Faculty Supervisor in personal conference. Since majors in Bacteriology receive a thorough basic training in other Biological Sciences and in Chemistry, they have considerable opportunity to select the field of work they will be particularly interested in after graduation.

Students interested in majoring in Bacteriology are advised to consult with the Supervisor, Professor L. W. Slanetz, Room 215, Nesmith Hall.

Biology

Students interested in a broad training in the various life sciences are advised to major in Biology. Such students will find it possible to use courses in Bacteriology, Botany, Entomology, and Zoölogy in building up a program that will fulfill their particular requirements. The field, however, is so inclusive that the majority of students will find it desirable to carry a large part of their work in one of the subdivisions such as Bacteriology, Botany, or Zoölogy. In addition to those students who desire Biology for its cultural background, it is suggested that students interested in *biological laboratory technique, Fish and Game Management, Applied Biology, and secondary school teaching* register as Biology majors.

Secondary School Teaching.—Students planning to teach Biology in secondary schools are strongly urged to plan for cadet teaching during their Senior year. Since few positions are available in any year for the teaching of Biology alone, a student should consider a program of study which may qualify him for the teaching of other sciences also.

Applied Biology (Fish and Game Management, etc.).—Students preparing for positions which involve the application of the Science of Biology, such as those frequently listed by the Federal Civil Service and by the State governments, should concentrate in the field of Applied Biology. The Department is especially fitted to prepare students for

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work in Fish and Game Management. Students preparing for professions in this group should plan to secure advanced degrees since positions in these fields are difficult to secure without post-graduate training.

Biological Laboratory Technique.—In consequence of the increasing number of intricate and lengthy procedures in the Biological laboratory, the independent investigator or physician is unable to accomplish much without trained assistants. Those assistants who become specialists in certain phases of laboratory work are known as technicians. The successful technician is not a mere robot or skilled laborer but must be a person with the background and training which enables him to assume responsibility for accurate analysis. Some of the most famous scientists began their careers as technicians.

After completing his basic training in Biology and Chemistry, the student may find employment in many fields. The technician in a clinic or hospital may make routine urine analyses, blood and bacteriological tests, and prepare sections of tissues. The private physician may employ a technician for both laboratory and office work. Nurses with training in laboratory technique are assured of excellent positions. Biological laboratories and supply houses employ technicians to make slides and other preparations for schools and museums. Many technicians, with a year or two of experience, obtain positions in federal, state, or city public health laboratories. The government is taking more and more interest in public health and recently large sums of money were set aside for work in this field. Scientists in government positions, universities, colleges and private foundations have technicians prepare slides and carry on many routine experiments. In smaller institutions and in experiment stations a technician may have other duties such as teaching and maintaining a dispensary. In museums they prepare slides, models, skins, and plant and animal habitat groups. Large drug companies hire technicians to test the effect of chemicals and drugs on animals.

The program to be followed by a student who plans to become a laboratory technician will depend upon his objective—whether preparing to become a laboratory technician in a hospital, or in a public health clinic; a doctor's assistant and secretary; or a technician in connection with some of the private industries.

Students interested in medical laboratory technique are strongly advised to plan to become medical technologists. These are highly trained technicians who have passed a course accepted as adequate by the American Medical Association. This involves an exacting training including Zoölogy 57, *Laboratory Technique*; Zoölogy 53, *Histology*; Chemistry 25, *Quantitative Analysis*; Chemistry 45, *Organic Chemistry*; and Agricultural Chemistry 51-52, *Physiological Chemistry*; Physics 1, 2; Bacteriology 1, *General Bacteriology*; Bacteriology 8, *Pathogenic*

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Bacteriology; and *Bacteriology 53, Immunology and Serology*. Twelve months' additional training in an approved hospital is required for registration as a medical technologist. Technologists with such training are rapidly replacing the ordinary laboratory technician.

Students interested in becoming medical secretaries or doctors' assistants should follow a program similar to that of laboratory technicians and, in addition, should have two years of typewriting and shorthand.

Students who major in Biology are expected to meet in full the requirements of the General Liberal Arts Curriculum with 24 semester credits of work in Biology (exclusive of Biology 1-2), completed with grades of C or better. Students interested in majoring in Biology are advised to consult with the Supervisor, Professor C. F. Jackson, Room 101, Nesmith Hall.

Botany

Students interested in plant life are advised to consider registration as majors in Botany. Students majoring in Botany who desire to go into Federal or State Government services, Government or private research or college teaching should prepare to undertake graduate study. Positions in State and Federal work in plant-disease study, crop production, and related economic fields are available. There are also positions open to graduates of the College of Liberal Arts in business and professional areas where some knowledge of Botany is required. Botany has long been recognized as a basic course in the College of Agriculture, but few people have realized the importance of plants in the environment of every individual regardless of his occupation. Food, fabrics, and fuel are largely derived from plants. It is desirable, therefore, that every person get some understanding of the nature of plants.

Students who major in Botany are expected to meet in full the requirements of the General Liberal Arts Curriculum which are set forth on page 133. They must also complete courses offered by the Section, and by related departments, to a total of 24 semester credits, with grades of C or better. These 24 credits may be earned in elective courses, required courses, or in both. The following courses are required of Botany majors: Botany 1 or Botany 3; Botany 5, *Plant Anatomy and Cytology*; Botany 56, *Plant Physiology*; Botany 51, *Plant Pathology*; Botany 6, *Systematic Botany*; Chemistry 1-2 or 3-4, *General Chemistry*. Of these all but Chemistry 1-2 and 3-4 carry major credit if passed. Other courses in Botany, in addition to those listed, and also Agricultural Chemistry 1, 2; and Zoölogy 61, *Heredity and Variation*, may be elected by students for major credit.

The courses of each major program are selected to meet the needs of the individual student, as determined by the student and his Supervisor in personal conference.

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Students interested in majoring in Botany are advised to consult with the Supervisor, Professor A. R. Hodgdon, Room 218, Nesmith Hall.

Chemistry

Students interested in the study of Chemistry will find opportunities in different fields such as (1) industrial work involving the development of processes or production activities or sales work based on a scientific knowledge of the marketable product; (2) the teaching of Chemistry and allied subjects in secondary schools or of Chemistry in colleges; (3) graduate study for those students who are interested and particularly proficient in their undergraduate work.

The University offers two channels for the study of Chemistry; majoring in the subject in the College of Liberal Arts, or enrolling in the Prescribed Curriculum in Chemistry and Chemical Engineering in the College of Technology. In the College of Liberal Arts a major should complete Chemistry 3-4 or 3-6, *General Chemistry*, and Mathematics 5-6 in the Freshman year, and in addition other courses offered by the Department in *Analytical, Organic, and Physical Chemistry* to a minimum of 24 semester credits, with grades of C or better. According to the student's interests, other supporting subjects may be elected to form a broad program of study and prepare for some one of the opportunities listed above. Majors in Chemistry are expected to meet in full the requirements of the General Liberal Arts Curriculum, which are set forth on page 133.

The Department is equipped to furnish the training necessary for the teaching of Chemistry in the secondary school. Since, however, very few positions are available in any year for the teaching of Chemistry alone, a student should consider a program of study which may qualify him for the teaching of Chemistry and other sciences, and should consult Professor Iddles and Professor Stowe of the Department of Education. Students interested in the teaching of Chemistry in college are advised to plan on graduate study. Students who plan to major in Chemistry are advised to consult with the Supervisor, Professor H. A. Iddles, Room 117, James Hall.

Economics

Students interested in the economic and business life of the nation, who do not desire to specialize intensively in the Business Curriculum (see page 134), or the Secretarial Curriculum (see page 143), are advised to consider registration as majors in Economics. Students who intend to enter upon graduate study in Economics should plan to major in this field as undergraduates. An increasing number of opportunities in business and the public service are open to young people who possess graduate training in Economics.

Business positions in retail stores, chain stores, banks, sales organizations, and general business offices, insurance, and other firms, have

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been successfully filled by graduates of the University who have majored in Economics. The Business Curriculum provides specific preparation for several of these fields by reason of its specialized requirements. A student who desires breadth in his education, with an emphasis on Economics, is counselled to major in the Department.

The Department is equipped to furnish the training necessary for the teaching of Economics in secondary schools. Since, however, very few positions are available in any year for the teaching of Economics alone, a student should consider a program of study which may qualify him for the teaching of Economics and other social studies, and should consult the Supervisor, and Professor A. M. Stowe of the Department of Education.

Students who major in Economics are expected to meet in full the requirements of the General Liberal Arts Curriculum, which are set forth on page 133. They are required to complete successfully Economics 1-2, *Principles of Economics*. They are required to complete 24 semester credits of Economics, with grades of C or better. Individual programs will be arranged to meet the needs of the individual student. Related courses in other departments may be counted for major credit with the consent of the Supervisor.

Students interested in majoring in Economics are advised to consult with the Supervisor, Professor C. M. Degler, Room 104, Morrill Hall. Professor Degler may assign the student, when the field of his major interest is determined, to another member of the Department who is responsible for the area of concentration selected by the student and who will be his Supervisor throughout the duration of his course.

Education

Students who are interested in preparing themselves for teaching in the secondary school and who do not desire to follow any of the University Teacher Preparation Curriculums (pp. 123-129) should consult with Professor A. M. Stowe of the Department of Education, Room 118, Murkland Hall. Under some circumstances it is possible for such students to prepare themselves for teaching as majors in the subject matter departments in which they desire to teach. In other instances, it may be wise for them to do their work as majors in Education.

Majors in Education are divided into three groups: *first*, those students who find themselves academically interested in the subject and who intend to continue their study in graduate school. Such are required to complete 24 semester credits in Education with major grades.

A *second* group who major in Education do so to prepare to teach in secondary schools. They also are required to complete 24 semester credits in Education, with grades of C or better, and not more than 12 credits earned in practice teaching may be counted toward the fulfillment of this major requirement. These students are also required to

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complete, with an average grade of at least C, (1) a teaching major of at least 24 semester credits of post-secondary school work in a subject-matter department, or in a subject-matter field, and (2) either a second teaching major of at least 18 semester credits or two teaching minors of 12 semester credits each.

A *third* group of majors in Education are those students who are interested in teaching or in supervising in elementary schools and who are graduates of two- or three-year Normal Schools or Teachers Colleges. They are required to complete, with grades of C or better, 12 semester credits of work in Elementary Education selected from the advanced courses in that subject offered in the Summer School as a part of the total credits which are required of them as candidates for the Degree of Bachelor of Arts. The remainder of their major programs will be selected by such students with the advice and approval of the Head of the Department of Education. (See special Language requirements, page 131).

While some of the courses offered in Education are designed to be of interest to the general student, only those students who have definitely decided to prepare themselves for the teaching profession should seriously consider majoring in the Department of Education.

Professor A. M. Stowe, Room 118, Murkland Hall, is the Supervisor of all majors in Education. Arrangements will be made, however, to enable majors in Education to be advised in particular problems by members of the staff who are best qualified to be of service to them.

English

Majors in English are divided into three groups: *first*, those students who seek a liberal education with the emphasis upon the study of English and American literature; *second*, those who plan, immediately after graduation, to begin their chosen work and desire as a foundation for it a greater knowledge of English; and *third*, those who intend to use their undergraduate work in English as a preparation for graduate work. Concentration in the field of English is of definite value to students in the second group planning to enter library work, radio, publishing, writing, the theater, or teaching in the secondary school; and to those in the third group who contemplate graduate work in law or in journalism. It is, of course, essential for graduate work in the theater or in English. For all three groups, study of English and American literature trains the mind in logic and broadens the understanding and appreciation of the thought of the great minds of the past.

In addition to meeting in full the requirements of the General Liberal Arts Curriculum, which are set forth on page 133 of the Catalogue, *Majors in English* are required to take without major credit English 25, English 35 or English 43. They must earn major grades in 24 semester credits in courses in English literature numbered above 50. For their major they must elect one semester of work in the *Great*

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Figure courses; one semester's work in each of two *Century* or *Period* courses; one semester of work in each of two *Advanced American Literature* courses; and one semester of work in the *Type* courses. They are required to take for major credit two semesters of *Shakespeare* (which cannot be counted as satisfaction of the requirement of a Great-Figure course). At the end of the Senior year English majors must pass a written examination on English and American literature. As a preparation for this the Department issues a syllabus of the work to be covered in the examination and offers for Seniors and Graduate Students a survey course, which is optional and does not carry major credit.

To supplement their major programs, English majors are advised to take courses in history, particularly in English and American history; the survey of Greek and Roman literature; the survey of modern European literature; and at least one modern language.

Students who are interested in majoring in English must consult the Supervisor, Professor S. H. Bingham, Room 107, Murkland Hall.

Entomology

The Department of Entomology offers various courses for students who wish to concentrate on the study of insects, insect life, and the control of insects. Although the field of employment is limited, there are definite opportunities available to those qualified. The majority of these opportunities are in the public service, although commercial and industrial firms also employ college graduates who have concentrated in Entomology. Graduate study is desirable for the student who seeks high achievement in Entomology. A more intensive program in Entomology may be secured in the Prescribed Curriculum offered in the College of Agriculture.

Students who major in Entomology are expected to meet in full the requirements of the General Liberal Arts Curriculum, which are set forth on page 133. They are expected also to complete successfully courses offered by the Department, and related departments, to a total of 24 semester credits, with grades of C or better. Outlines of specific suggested programs of study are available to the student upon request to Professor J. G. Conklin, Supervisor, Room 16, Nesmith Hall.

Geology

The field of Geology includes the earth sciences. This is not alone the study of minerals, rocks, and evidences of prehistoric life. It includes also the history of the earth from its beginning, as well as the evolution of the landscape, and other environmental features which have influenced the development of life on the earth, including man.

Students interested in the earth sciences, both those who expect to make some phase of Geology their life work, and those who desire to

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build a program of liberal studies around a core of geological and related subjects, are advised to register as majors in Geology.

The search for new sources of essential mineral resources and the development of new uses for certain minerals have emphasized the need for men trained in the earth sciences. Positions as mining geologists, petroleum geologists, mine operators, state survey geologists, and university and college professors of geology and mineralogy have been successfully filled by graduates of the University who have majored in Geology. Other former major students are teaching in high schools or are in business, some in fields where their geologic training is useful, as in the cement and mining-machine industries.

Students who major in Geology are expected to meet in full the requirements of the General Liberal Arts Curriculum, which are set forth on page 133. They are expected also to complete Geology 1-2, *Principles of Geology*, and, in addition, courses in Geology or related courses approved by the Supervisor to a total of 24 semester credits with grades of C or better. The courses of each major program are selected to meet the needs of the individual student, as determined by the student and his Supervisor in personal conference.

Students who are interested in majoring in Geology are advised to consult with the Supervisor, Professor T. R. Meyers, Room 205, Conant Hall. After a student's major interest is determined, the advice, assistance, and counsel of one or more additional members of the Department will be sought where a special area of concentration is contemplated by the student. For example, the student whose special interest lies in geographic or meteorologic fields will be assigned to the staff member responsible for these fields.

Government

The courses offered by the Department of Government are designed to aid the student in gaining a knowledge of the nature, functions, and problems of Government and of the place of Government in the modern world. For this general purpose, courses are offered in public affairs—local, state, national, and international. Some of the courses listed in the Department are chiefly intended to provide information needed for intelligent and responsible citizenship and to provide a part of a liberal education. Others are of a specialized nature and have been planned to provide basic training for professional work.

By specializing in one of several programs in Government, the major student may prepare himself for: (1) graduate study in Political Science and Government, (2) teaching Civics, (3) Public Administration, (4) Research in Government, (5) The study of Law, (6) Graduate-School Training in Foreign Service.

In addition to the programs mentioned, a limited number of Internships in Public Office (Soc. Sci. 81) have been established, which

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permit Senior students to obtain firsthand knowledge of public service by working in an office in the State Capitol for a semester, for which they receive full college credit. Majors in Government have also an unusual opportunity for mastering research techniques and information concerning the state and local government of New Hampshire in the Bureau of Government Research.

The student who majors in Government should meet all the requirements of the General Liberal Arts Curriculum found on page 133. All major students are required to take Government 1, *Foundations of American Government* and Government 2, *Problems of American Government*. Students who expect to major in Government are advised to register for these courses, the Freshman year. A major in Government consists of 24 credits of work in Government, with grades of C or better, and in such related courses as may be approved by the Supervisor. Not more than 9 credits earned as an Interne, in Social Science 81, may be counted toward the completion of the major requirements. The student should, in addition to his courses in Government, elect work in English, Economics, Geography, History, and Sociology which are regarded as closely related fields. Each student will be counselled individually and his program of study planned for his needs.

Students interested in electing Government as a major should consult the Supervisor, Professor Norman Alexander, Room 212, Morrill Hall.

History

History, as a field in which to major, may be of interest to the following groups of students: (1) Those who wish to do college teaching in History. Graduate study is indispensable for such work, but preparation may be made for it by a certain amount of undergraduate specialization. (2) Those who plan to teach History in secondary schools. For such a position, training in other social studies is highly desirable, if not absolutely necessary. The student is therefore advised to keep in touch with the Department of Education as well as with the Department of History, with a view to satisfying teaching standards and building a well-rounded program of studies. (3) Those who intend to enter other professional fields in which a considerable amount of historical knowledge is desirable. Such a field, for example, might be that of Library Training, in which an historical training would rank with training in literature as a background, or the increasingly important profession of Archivist. (4) Any students who feel free to plan the college program without too specific reference to a vocation, and who have a special interest in History.

Students who major in History are expected to meet in full the requirements of the General Liberal Arts Curriculum which are set forth on page 133. They must also earn major grades in 24 semester credits in courses in History, exclusive of History 1, 2. The 24 semester credits with major grades may be earned in elective courses, in re-

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quired courses, or in both. Philosophy 55, 56, *The Philosophy of History* is a required course for all History majors and may be counted for major credit.

Any department in the College of Liberal Arts may be considered a related department, except Geology, Home Economics, Physical Education for men and women, and Biology.

Students planning to major in History should consult the Supervisor, Professor P. M. Marston, Room 209D, Morrill Hall.

History and Literature

Students who desire a broad cultural education may take a combined major in History and Literature. Students who plan to enter library service may also find here a desirable major. The program of this major offers an opportunity to study the history and literature together of Greece and Rome, of France, of Germany, or of Spain. A still broader survey of European history and literature is also possible. The program involves the completion of 24 semester credits with major grades in one of the following groups of courses, of which 12 credits should be in History and 12 in Language courses in either:

- (a) History 11, 12; 13, 14; 55-56
Latin 5-6; 7-8; 9-10; 51-52; 55-56
- (b) History 9, 10; 19, 20; 63, 64; 83, 84
Spanish 9, 10; 55-56; 57-58
- (c) History 14; 19, 20; 63, 64; 83, 84; 87, 88
French 11-12, 53, 54; 63-64
- (d) History 14; 19, 20; 63, 64; 83, 84; 87, 88
German 11-12; 53-54; 57-58; 63-64
- (e) 6 credits in either Languages 1, 2 or 51, 52
6 credits in French, German, Latin, or Spanish in courses numbered 7 or higher
12 credits in courses in Groups I or II in the Department of History

A student who has met the major requirements in History and Literature will receive the degree of B.A. with the notation "History and Literature" on the Commencement Program.

Students' registration cards may be signed by either Professor P. M. Marston, the Head of the Department of History, or Professor C. S. Parker, the Head of the Department of Languages.

Students electing Group (b), (c), or (d) will be expected to do a considerable part of their reading for the courses in History in Spanish, French, or German, respectively.

Home Economics

For many years it has been recognized that men who would be doc-

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tors, lawyers, ministers and engineers need specialized education. More recently, it has been conceded that particular preparation should be given to girls who want to be hospital dietitians, food service directors, teachers of Home Economics, designers of clothing, Extension workers, and followers of other women's vocations. Still more recently, we have thought that successful home living, highly satisfactory to others as well as ourselves, needs special preparation also.

The Department of Home Economics sponsors for the University both kinds of programs—the professional courses which meet the requirements of the profession, and the broad general programs with many electives which give a rich foundation for successful family life and good citizenship.

Students interested in preparation for homemaking, or in obtaining a broad, general education, particularly applicable to the needs of women, are advised to consider registration as majors in Home Economics. Such a program would not be as completely professional nor would it qualify the student so thoroughly as would one of the professional curriculums. A broad, general program would serve as pre-professional preparation for further training in child guidance, positions in the clothing and textile fields, salesmanship, interior decoration, and other similar lines. Girls wishing to follow such programs should consult with the Supervisor, Miss Verna Moulton, Room 212, Pettie Hall. Several elective courses are offered for, or are open to, students who do not wish to major in Home Economics.

While a good many interesting and worth-while vocations are open to Home Economic majors, there are some fields which demand Prescribed Curriculums. Special programs are arranged to train hospital dietitians (see page 136), institution administrators (see page 139), teachers of home economics (see page 147), and Extension workers (see page 147).

Majors in Home Economics are expected to meet in full the requirements of the General Liberal Arts Curriculum which are set forth on page 133. They are expected also to complete 24 semester credits with major grades in courses in Home Economics, exclusive of Home Economics 1, 2 and including Home Economics 3, 4; 15-16; 33 and (35). Related courses in other departments may be counted for major credit with the consent of the Supervisor.

Freshmen who expect to take Hospital Dietetics (see page 136) or Institutional Administration courses (see page 139) are advised to elect Home Economics 15-16, *Food*s. Those taking the Teacher Preparation Course (see page 147) should elect Home Economics 3, *Clothing Selection*, and 4, *Textiles*.

Languages

A major student in the Department of Languages may have a voca-

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tional or cultural objective. Many majors plan to enter secondary school or college teaching. For such students there is no hard and fast curriculum. The arrangement of Language courses is sufficiently flexible to meet the individual's needs. As most language teachers are obliged to teach more than one language, or one language in combination with other subjects, students should not plan to concentrate in a single language and its literature but to map out a program including two languages (preferably French and Latin), or one language with a number of courses in English or History. Prospective teachers should consult the Head of the Department, Professor C. S. Parker, and Professor A. M. Stowe of the Department of Education. Some departmental majors plan to enter library service. Most library schools require two foreign languages.

Major students who do not plan to teach usually have a cultural objective. Here again the flexibility of the departmental offerings makes it possible to arrange individual programs for individual students. No single course in the Department is required of all majors. Some students find a special appeal in a single foreign literature and wish to explore it thoroughly. Others find that the study of two or three languages and literatures is a broadening and stimulating experience.

For non-majors, the Department offers practical courses which are a valuable aid to careers in foreign service (consular, diplomatic, commercial, military, or naval), journalism (for international news, foreign books, and the like), interpreting, translating, travel agencies, radio announcing, etc. A knowledge of foreign languages is invaluable for the historian, the architect, the musician, the artist, the political and social scientist, and for any citizen interested in foreign affairs. The biologist, chemist, or physicist should always be able to read foreign articles and keep up with research in his field in foreign countries. The exchange of goods and information with South America is increasing. As most graduate schools require a knowledge of one or two foreign languages, all students who may possibly do graduate work in any field should obtain a reading knowledge of French and German. The elementary courses in French, German, and Spanish are planned particularly to help students acquire an ability to read and to speak the respective language; at the same time, through reading and oral work, the student learns something of the history, institutions, customs, and spirit of a foreign country. The study of Latin improves one's English and gives a firm basis for other language study.

For non-majors there are offered three courses which do not require a knowledge of a foreign language. These courses offer respectively a Survey of Greek and Latin Literature (in translations), a Survey of Modern European Literatures, and an Introduction to the Science of Linguistics.

Sophomores and Juniors may pursue a major in Languages; but

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Seniors must designate French, German, Latin, or Spanish as their particular major. Elementary courses French 1-2, German 1-2, Greek 1-2, Latin 1-2, and Spanish 1-2 cannot be counted toward the fulfillment of a major. Except for this restriction, a student majoring in one language may count approved courses taken in another language. Of the 24 semester credits, completed with grades of C or better, which comprise a student's major, not more than 6 may be earned in such closely-related courses in other departments as may be approved by the Supervisor. The special Supervisor for majors in Languages and in French is Professor C. S. Parker; for majors in German, Professor J. S. Schoolcraft; for majors in Latin, Professor J. S. Walsh; for majors in Spanish, Professor J. Berzunza. All offices of the Department of Languages are in Murkland Hall.

Attention is called to the combined major in History and Literature, described on page 102.

Mathematics

A limited number of vocational opportunities are available to students who major in Mathematics. Positions requiring a knowledge of statistics are the most numerous in this field. These are found in government agencies, business, life insurance, and in several types of research. Many problems in Education, Economics, Sociology, Medicine, Genetics and other fields depend upon Statistics as a tool of investigation. For an introduction to the field, the Department offers Mathematics 61-62, *Introduction to Statistical Methods*. This course requires the prerequisite of one year of college mathematics or its equivalent. Many secretarial workers will find it very useful to be familiar with the fundamental principles of Statistics.

The life insurance field offers opportunities to students well trained in the mathematics of finance and insurance. This field also seems to give a good basis for those who wish to do high-grade work in accounting.

Students who wish to prepare to teach Mathematics in the secondary school or in college may well select a major in the Department. Since, however, opportunities to teach only Mathematics in high schools are very limited, the student should prepare for the teaching of other subjects, as well as Mathematics, and should consult Professor H. L. Slobin and Professor A. M. Stowe of the Department of Education. Students who wish to prepare for college teaching of Mathematics should plan on graduate study.

Professor H. L. Slobin, Room 1, Murkland Hall, should be consulted by students interested in majoring in Mathematics.

The student who majors in Mathematics should meet all the requirements of the General Liberal Arts Curriculum found on page 133,

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and should complete 24 semester credits of work in Mathematics, with grades of C or better, including Mathematics 7 and 8. Related courses in other departments may be counted for major credit with the consent of the Supervisor.

Meteorology

The Meteorology program is designed to provide basic training for those desiring to become professional meteorologists. Such courses as are provided in this program prepare the student for necessary graduate studies. Within recent years the need for meteorologists has increased rapidly in government services, commercial airlines, and in the teaching of Meteorology.

Students who major in Meteorology are expected to meet in full the requirements of the General Liberal Arts Curriculum, which are set forth on page 133. They are expected also to complete courses in Meteorology and related subjects to a total of 24 semester credits, with grades of C or better.

Music

The Department of Music offers a major program in the General Liberal Arts Curriculum for students who desire to place a mild emphasis on Music while pursuing a broad, general program of study. The study of music history, literature, and appreciation gives the student cultural values which should enrich his entire life. Music study tends to increase understanding and appreciation of other fields, including the Fine Arts, Language, and Literature. The instruction offered in the Department of Music sponsors the culmination of musicality (appreciation and general comprehension of music form), musicianship (musical astuteness and scholarship), ability to perform, and capacity to teach, supplemented by a well-rounded concept of general culture prescribed by the College of Liberal Arts.

Instrumental instruction and vocal instruction are given in private lessons. Class instruction provides for the pursuit of academic music studies. Student recitals, instrumental and vocal ensembles, Men's Glee Club, Women's Glee Club, the University Chorus, the University Symphony Orchestra, University Concert Band and Marching Band afford both laboratory and concert experience.

Students who major in Music are expected to meet in full the requirements of the General Liberal Arts Curriculum, which are set forth on page 133. They must also earn grades of C or better in 24 semester credits in courses in music.

The Department of Music offers the student three options in concentration leading to the Bachelor of Arts Degree with a major in music:

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- I. A non-specialized option which gives the student a well-rounded, comprehensive knowledge, and appreciation of the art. The following courses are required and recommended: Required, Music 15-16, 37, 38, 57, 58, 4 hours of applied music. Recommended, 11-12, 33, 34.
- II. Applied music option which emphasizes training in voice, piano, organ, or violin. The following courses are required and recommended: Required, 15-16, 57, 58, 31, 8 applied semester hours in major field. Recommended, 11-12, 33, 34, 3W, 3M, 5, 9, 7, 1.
- III. A theory option stressing musical composition. The following courses are required and recommended: Required, 15-16, 51-52, 57, 58, 96, 97, 98. Recommended, 11-12, 33, 34.

A major in music, however, has very limited vocational opportunities.

Prospective majors in music are advised to consult with the Supervisor, Professor Karl H. Bratton, Room 101, Ballard Hall.

Philosophy

This Department proceeds on the assumption that Philosophy, which has sometimes borne the reproach of being impractical, is in reality very practical and can make its contributions to actual living. It is interested in the diffusion of the philosophic spirit among all students as well as in training specialists in Philosophy. It proceeds on the belief that Philosophy is (1) an attitude, (2) a method, and (3) a body of knowledge which may greatly aid in the development of wisdom.

Students in any of the following groups may find Philosophy of value. (*At present the Department does not offer opportunity for a major.*)

1. Those for whom the greatest intellectual need is to become at home in the whole world of thought through an inclusive investigation of nature and man. Such individuals, equally interested in both the social studies and the humanities, but without a preference for any as a specialty, might find in the breadth and depth of Philosophy the field of partial concentration of greatest value to them.

2. Those whose interest in Philosophy, or in social or humanistic studies, suggests the teaching of Philosophy as a vocation.

3. Those planning to attend theological schools or to specialize in religious education.

Physics

Physics is perhaps the oldest of the sciences. Recent advances in Physics have opened vast new fields and have afforded glimpses of future developments never before imagined. The scientific method, the method of actively pursuing nature by questions put in the form of

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controlled experiments, has created a new world of experience. Nature has been questioned in high vacuum, at low temperature, under tremendous pressure, at incredible velocities; and by means of million-volt X-rays, and gigantic cyclotrons. The new knowledge in dozens of fields has proved exceedingly useful. The development of modern industry is a lagging but accurate measure of research developments in Physical Science.

Because of its subject matter and its age the science of Physics stands on an exceedingly broad foundation. The basic facts of Physics are also the basic facts of other sciences. The study of Physics is necessary for those who intend to devote their lives to some field of science. For those who are not primarily interested in science, the study of Physics is perhaps the most effective way to acquire an understanding of the method of achievement in science. The study of Elementary Physics is an introduction to the methods of scientific reasoning and to the use of symbols in exact quantitative work.

Physics offers a fascinating field for concentration in the General Liberal Arts Curriculum and affords an excellent general scientific training for positions in Applied Science such as radio engineering, aeronautics, radiology, design and development of measuring and testing equipment of all kinds. Several opportunities are open to Physics majors:

(a) Research positions in industrial concerns. Physicists are employed by companies manufacturing articles as widely different as textiles, rubber, paper, radio equipment, automobiles, aircraft, pianos, and household appliances. A second degree in Physics is desirable.

(b) Civil Service. In addition to the usual work for physicists in Civil Service, the present-day conditions have created a demand for more men and women thoroughly trained in Physics.

(c) College and University positions in teaching and research. Such positions are attained only after considerable graduate study. Good students often obtain graduate assistantships in institutions which afford the advantages of financial support, university teaching, and laboratory experience, and the chance to continue with advanced study.

(d) Laboratory technicians. Biological or psychological laboratories operate and maintain electrical apparatus such as amplifiers, oscillographs, automatic time recorders, signal generators for auditory experiments, potentiometers for retinal potential work, and other equipment.

(e) Secondary school teaching.

The Department is prepared to give training in Physics with the aim of fitting students either to take a place in industry, or to undertake graduate study, or to teach in high school. Students who wish to major in Physics are advised to consult with the Supervisor, Dr. Horace L. Howes, Room 111, DeMeritt Hall. After a student's major interest is

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determined, the advice and counsel of an additional member of the Department will be sought where a special area of concentration is contemplated by the student.

Students who major in Physics are expected to meet in full the requirements of the General Liberal Arts Curriculum which are described on page 133. They are also expected to complete courses offered by the Department in addition to Physics 1, 2, *Introductory Physics*, up to 24 semester credits, with grades of C or better.

Psychology

Some students may wish to major in Psychology for the purposes of understanding themselves and others more adequately and of gaining knowledge of scientific methods of studying human behavior. Others may not only have these aims in mind but also may wish to specialize in Psychology to prepare themselves for one of the following vocational objectives: (1) college teaching; (2) personnel work in industry or government; (3) supervision of psychological testing in mental hospitals, juvenile courts, city school systems, child guidance clinics, and the United States Civil Service; (4) counselling and guidance in secondary schools and colleges.

Students who contemplate major work in Psychology as a means of preparing for a vocation should keep in mind the necessity of graduate work. For non-majors, a background of Psychology will be an asset in teaching, nursing, social work, business and industrial management, or professions, such as medicine and law, in which human relations are of primary importance.

Students who major in Psychology are expected to meet in full the requirements of the General Liberal Arts Curriculum. They are required to complete 24 semester credits, with grades of C or better, in courses in Psychology and in such major subjects as may be approved by the Supervisor. These credits must include Psychology 1, *Elementary General Psychology* (which cannot be used for major credit), Psychology 2, *Advanced General Psychology*, Psychology 67, *Principles of Measurement*, and Psychology 98, *Seminar*. Students who wish to major in Psychology are advised to consult with Professor Herbert A. Carroll, Room 114, Murkland Hall.

Sociology

Students who plan to make social work their professional interest are advised to follow the Social Service Curriculum (see page 145). Those wishing to acquire a thorough knowledge of contemporary society, what it is, how it came to be so, the fundamental laws operative within it and the interrelation of the processes, agencies, and institutions, its problems, controls and trends should consider registration as

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majors in Sociology. It is well recognized that success in any business or profession in our complex society rests as much upon social awareness and understanding as upon technical knowledge and skill.

Students looking toward a career in law, medicine, the ministry, as well as those desiring a sociopsychological background for commercial, industrial or financial pursuits, would do well to supplement their majors by basic courses in Sociology.

The Department is equipped to provide the necessary training for teachers of Sociology in secondary schools. As such teachers usually have to teach related social studies, students should consult Professor C. W. Coulter, Head of the Department, and Professor A. M. Stowe of the Department of Education about work supplementary to the major.

Students majoring in Sociology are expected to meet in full the requirements of the General Liberal Arts Curriculum (see page 133). They are expected to take Sociology 1, *Principles of Sociology*, and 2, *Social Psychology*, and, in addition, a minimum of 24 semester credits with grades of C or better in the major field, including Sociology 75, *Methods of Social Research*, or 84, *Methods of Social Progress*, and at least 6 semester credits of advanced work in one or more of the following correlated subjects: Economics, Government, History, Psychology, Home Economics, or Zoölogy, depending upon their vocational interest.

Students interested in majoring in Sociology are advised to consult the Supervisor, Professor C. W. Coulter, Room 201, Morrill Hall.

Zoölogy

Zoölogy is the science of animal life; the study of the structure, functions, development, nomenclature, and classification of the various animal forms. The student in Zoölogy may prepare himself for graduate work in pure science, or in Applied Zoölogy. Fish and Game Management, important in the conservation of our natural resources, is an example of Applied Zoölogy. Several of the branches of Zoölogy, such as Ornithology, Mammalogy, and Ichthyology are important fields in both pure and applied science. Entomology, another branch, ranks as a separate science. As another major subject of study it is treated elsewhere in this Catalogue.

Pre-Dental training parallels very closely the Pre-Medical Curriculum and the student's program should include courses in Comparative Anatomy, Physics, and Organic Chemistry. See page 142.

All students majoring in Zoölogy are expected to meet the requirements of the General Liberal Arts Curriculum, with grades of C or better in 24 semester credits of work in Zoölogy. Related courses in other departments may be counted for major credit with the consent of

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the Supervisor. Biology 1-2, however, may not be counted for major credit.

Students interested in any one of the varied programs available in Zoölogy are advised to consult with the Supervisor, Professor C. F. Jackson, Room 101, Nesmith Hall.

OTHER PROGRAMS OF STUDY

Although pursuing his studies in the College of Liberal Arts in one of the major fields just outlined, the student may also prepare himself for some related objective which he may have in mind. Three of these are described below, and there is enough freedom of election to make it possible for the student in consultation with his Supervisor to arrange others.

Institutional Management

The student who wishes to work in the field of Institutional Management (the care and maintenance of any form of household from the individual family dwelling, to the hotel, hospital, sanitarium or other housing of the many) will find in this Catalogue under the offerings of the Departments of Home Economics, Hotel Administration, and Economics and Accounting a variety of courses fitted to his needs. Such students should consult for further information on this subject Professor Helen F. McLaughlin, Room 209, Pettee Hall, or Professor Raymond R. Starke, Room 219, Murkland Hall.

Pre-Law

While the bar associations and law schools do not prescribe a specific undergraduate curriculum for future lawyers, they do recommend that a student who contemplates entering law school should plan a study program which will develop breadth of view and facility of expression. They also urge him to acquire a background of information concerning the society in which he lives and the forces which have shaped modern institutions.

The courses considered most helpful are those developing oral and written expression; dealing with man's social, economic, and political institutions; providing an understanding of the human mind; and developing the art of thinking. Finally, since the case method of study is used in law schools, courses devoted to the intensive study of the subject matter are considered helpful as an introduction to the materials and the discipline which the student will experience in law school.

Students who plan to enter law school after graduation are advised to counsel with Professor Norman Alexander, Room 212, Morrill Hall, as soon as they have made their decision.

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Public Health Work

Many students become interested in Public Health work through their study of Hygiene and Sanitation. This is a rather new and growing field which demands special postgraduate training at recognized schools of Public Health. Students interested in this field should elect courses leading to the particular line of Public Health work in which they are interested; for example, training for administrative work would involve Economics, Sociology, and Psychology, in addition to Science training; training for work as Sanitary Inspector would involve courses in the College of Technology such as Sanitary Engineering. In the higher positions in this field an M.D. degree is necessary in addition to the special training.

PRESCRIBED CURRICULUMS

Several prescribed programs of study intended to provide training for business or professional life are available to students in the College of Liberal Arts. They are arranged in such manner as to permit considerable intense specialization while conserving the breadth and general culture of the students enrolled in them. They are less broad and general, however, than the General Liberal Arts Curriculum. They are definitely vocational in character. All prescribed Curriculums lead to the Degree of Bachelor of Science.

Business Curriculums

Two Curriculums are offered in the field, (1) a Curriculum for students who do not desire to specialize in any particular phase of business; (2) a Curriculum for those desiring to specialize in accounting. Both Curriculums provide for general educational training as well as specific training in business subjects. Many of the graduates from the Business Curriculum are successfully filling responsible positions in accounting, banking, insurance, merchandising, and manufacturing concerns.

The Business Curriculums are planned to emphasize foundation or general courses in the Freshman and Sophomore years with specialization coming largely in the Junior and Senior years. The programs are outlined on pp. 134-135. Students registered for these Curriculums are held for the requirements expected of students in all Prescribed Curriculums which are set forth on page 132. Students pursuing the General Business Curriculum must obtain grades of C or better in 24 semester credits from the following courses: Business Administration 1-2, 21, 22, 23, 24, 28, 31, 34, Econ. 1-2, 3, 24, 51, 53, English 35, and the required electives from Economics and Business Administration.

Students pursuing the Curriculum in Accounting must obtain major

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grades in 24 semester credits from the following courses: Business Administration, 1-2, 3-4, 5, 6, 7-8, 11, 12, 21-22, 23, 24, 28, 31, Econ. 1-2, 3, 24, 53, English 35.

Students interested in Business are advised to consult the Supervisor, Professor A. W. Johnson, Room 302, Morrill Hall.

Hospital Dietetics Curriculum

Hospitals, clinics, and various public and private health agencies employ dietitians to give advice on proper diets for the preservation of health or the treatment of disease, or to administer dietary departments in institutions caring for sick people. The American Dietetic Association sets up certain standards for such curriculums, and the New Hampshire program is set up according to the Association's specifications. See page 136.

In addition to the four-year program of work at the University, the student must successfully serve for one year as an intern in the dietary department of an approved hospital if she wishes membership in the American Dietetic Association, or to obtain a position in an approved hospital. On occasion, smaller hospitals give graduates positions as assistant dietitians without the fifth year of hospital training, but students interested in the hospital field are strongly urged to serve a year as interns if at all possible. The conditions under which this work may be taken vary with the hospital. Some of the best hospitals in this part of the country accept high-ranking New Hampshire graduates.

It is further recommended that students register for the course, Home Economics 48, *Field Work in Institutional Practice and Extension*, during the summer between the Junior and Senior years, in order to test out their interest in and aptitude for hospital work before registering for the final work of the Senior year.

Basic courses in both the Physical and Biological Sciences are included in this program. General courses are not neglected, and there are some opportunities for electives. In addition, practical training and experience are given in the University Dining Hall where modern equipment and food service practices are actually demonstrated.

The Hospital Dietetics Curriculum is essentially vocational. Students interested in broad, general programs with a mild emphasis on Home Economics are counselled to major in the field in the General Liberal Arts Curriculum, and should consult page 102.

Students interested in teaching Home Economics in secondary schools or in colleges should consult the description of the Home Economics Teacher Preparation Curriculum which appears on page 147.

Students registered in the Curriculum are held for the requirements expected of students in all Prescribed Curriculums which are set forth

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on page 132. Those interested in Hospital Dietetics are advised to consult the Supervisor, Professor Helen F. McLaughlin, Room 209, Pettee Hall.

Hotel Administration Curriculum

Young men and women to whom a career in Hotel work makes an appeal are invited to follow this Four-Year Curriculum. Hotel work is no sinecure; hard labor and long hours are the inevitable condition of final success. The details of the Curriculum will make these facts evident.

To do well in Hotel work requires on the part of the student real effort, and the eventual acquirement of wide knowledge in an extensive range of subject matter. On the other hand, there are many positions open to Hotel graduates, and the Hotel industry is an expanding one.

The Four-Year Curriculum is designed to give the student the well-rounded education demanded of the Hotel executive, and is not confined strictly to vocational work. The program includes, besides vocational subjects, cultural courses in History, Economics, English, and the Sciences.

The basic work comprises four main divisions: Foods, Engineering, Accounting, and Hotel Management Problems. About three-fifths of the total Curriculum is prescribed by the requirements of the Department in these four groups, together with the University and College requirements, leaving about two-fifths of the time open for electives in allied subjects or others of the student's choice.

To make certain that the Hotel educational program contains some experience under working conditions, each student is required to secure before graduation a minimum of 20 points of Hotel practice credit in addition to the requirements for the Hotel Administration Curriculum. This will be gained through work in hotels where supervision will be authorized, regular reports submitted by the student, and the grade of work reported by the employer. Each week of work will constitute one point. Not more than 12 points may be secured for any one type of work performed, nor more than 20 points from a given hotel.

The program is outlined in detail on page 137. Students registered in the Curriculum are held for the requirements expected of students in all Prescribed Curriculums which are set forth on page 132.

Students interested in Hotel Administration are advised to consult the Supervisor, Professor R. R. Starke, Room 219, Murkland Hall.

Institutional Administration Curriculum

Trained managers of the dietary and residence departments of various institutions are in great demand today. Students interested in pre-

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paring themselves to become food service directors in schools, colleges, tea rooms, and various private and public institutions are advised to register in the Institutional Administration Curriculum and should consult the detailed requirements of the program which are set forth on page 139. The major emphasis of this program is in feeding groups of normally healthy people. Students who are interested in food problems of people in poor health who have to be treated in hospitals or clinics are advised to follow the Hospital Dietetics Curriculum, which is described on page 136.

The Institutional Administration Curriculum, which is administered by the Department of Home Economics, provides a good foundation in the Physical and Biological Sciences, some general education obtained through elective courses, and affords a limited opportunity of securing practical experience, through work and observation, in feeding large groups of people, accomplished under the supervision of trained dietitians, in the University Dining Halls. The successful completion of this Curriculum qualifies the student to be a dietitian in a small institution or an assistant dietitian in a larger one, from which latter position she may advance to the position of Head Dietitian.

The Curriculum is essentially vocational. Students interested in broad, general programs with emphasis on Home Economics are counselled to major in the field of Home Economics in the General Liberal Arts Curriculum and should consult page 102.

The courses in the program are based upon the Physical, Biological, and Social Sciences. The technical work in Foods, Nutrition, and Dietetics is based on the principles of Chemistry and Physiology. That in Sanitation necessitates a knowledge of Chemistry and Bacteriology. Provision is also made in the Curriculum for a student to earn college credit for successful summer field work in an approved institution. The field demands an intensive and thorough training, but the employment opportunities are extensive and varied enough to make it worth the effort and time of the average student.

Students registered in the Curriculum are held for the requirements expected of students in all Prescribed Curriculums which are set forth on page 132. Students interested in Institutional Administration are advised to consult the Supervisor, Professor Helen F. McLaughlin, Room 209, Pettee Hall.

Nursing Curriculum

Any woman student interested in nursing as a career is encouraged to consider the Nursing Curriculum. It affords opportunity for examinations for registration as a nurse and enables the matriculant, also, to secure a college degree. The breadth of training beyond that usually received in a hospital training school is increasingly in demand, par-

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ticularly for those who aspire to executive or supervisory positions. The Curriculum prepares for nursing and also permits the student some specialization in other fields related to nursing. (See page 140.)

The student must satisfactorily complete three years of work in residence at the University of New Hampshire, and graduate from a school of nursing approved by the University. The length of the training period will vary with the several schools of nursing.

A student registered in the Curriculum is held for the requirements expected of students in all Prescribed Curriculums which are set forth on page 132.

Students interested in selecting the Nursing Curriculum are advised to consult with the Supervisor, Professor C. G. Dobrovolny, Room 106A, Nesmith Hall.

Occupational Therapy Curriculum

An ally to the medical and nursing profession, Occupational Therapy is a form of medically prescribed treatment using as its medium a wide variety of skills, crafts, and techniques.

Its early adaptation, long before World War I, grew from the knowledge that occupation is nature's best medicine. From its use in the first World War as a morale agent, it has expanded to the point of recognition by the American Medical Association as an important treatment in all types of illnesses.

The course admits both men and women who can meet entrance requirements.

The successful practice of Occupational Therapy requires not only thorough academic training but also suitable personality combined with judgment, dependability, tact, tolerance, patience, and a will to serve. A high degree of mental and physical health is essential. Occupational Therapy requires physical vitality and emotional stability.

In accordance with the standards of training approved by the American Occupational Therapy Association, all students must be at least twenty-one years of age at time of graduation from college. The maximum age is thirty-five, although exceptions are sometimes made in the cases of well-qualified persons.

The course in Occupational Therapy is designed to satisfy the requirements of the American Medical Association as well as to offer a four-year course leading to the B.S. Degree. This includes the theoretical subjects needed in the medical field as well as a wide range of crafts used in therapy and recreational, educational, and pre-vocational subjects.

At the completion of the four-year course, the student will spend eight months in clinical practice in affiliated hospitals or services under

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the direction of a registered Occupational Therapist. When this internship is satisfactorily completed, the student is entitled to a Certificate of Occupational Therapy. The student is then qualified to take examination for registry in the American Occupational Therapy Association. The standard examination is sent out by the Association and administered by the University. A fee of \$10 is required by the Association for each examination.

Eight months of practical experience in hospitals is divided as follows:

- Mental hospital—not less than two months
- Tuberculosis sanatorium—not less than one month
- Children's hospital—not less than one month
- General hospital—not less than one month
- Orthopedic hospital—not less than one month
- Optional for the remaining two months

The American Medical Association requires a physical examination including a tuberculin test prior to hospital training.

Expenses vary during the period of clinical practice. Room, board, and laundry are given students by some hospitals; meals only in other hospitals; while others offer training only. In all cases, the University supervises living arrangements for student affiliates. Blue jumper uniforms with white blouses and white shoes and stockings are required for hospital training.

The present demand for qualified therapists is far in excess of the supply.

Students interested in this Curriculum are held for the requirements expected of students in all Prescribed Curriculums which are set forth on page 132. They are advised to consult with the Supervisor, Miss Doris F. Wilkins, at the Craft Cottage.

Pre-Medical Curriculum

Young men and women interested in careers as physicians or surgeons are counselled to select the Pre-medical Curriculum. Students who successfully complete this Curriculum will be eligible for admission to class A medical schools. However, owing to the large number of applications for admission to medical schools, usually only those students who stand in the upper third of their class during their pre-medical work can expect to be admitted. Also, some medical schools restrict the number of students admitted from any one pre-medical institution. Preference is always given to those students who have the most complete training and who stand highest in their pre-medical work.

It is highly desirable that a student spend four years at the Uni-

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versity in preparation for medical training, although some medical schools do not require a Bachelor's degree as a condition of admission. The four years of pre-medical work will, however, give the student a broad foundation for his future medical work.

The Curriculum is outlined in detail on page 142. Students registered in it are held for the requirements of all Prescribed Curriculums which are set forth on page 132.

Students interested in this Curriculum should consult the Supervisor, Professor G. M. Moore, Room 107-B, Nesmith Hall.

Secretarial Curriculum

A large number of college women find pleasant and profitable employment in secretarial positions in private, professional, commercial and industrial offices. Although in most cases the initial appointment is to a subordinate position in an office organization, the breadth of the college education plus the secretarial skills acquired during the college course give opportunity for early assumption of greater responsibility.

Although the Curriculum is essentially vocational, it provides for a rather liberal number of elections with which to secure the general education so essential to success.

Women students interested in other aspects of business are advised to consider the Business Curriculum described on page 134, and those interested in less specialization are counselled to consider a major in Economics in the General Liberal Arts Curriculum as set forth on page 96.

Women preparing to teach commercial subjects in high school should include in their Freshman programs Sec. St. 7-8; in their Sophomore programs Sec. St. 1-2, 23-24, Economics 3, Business Administration 1-2, English (year's work), and Education 41, 42; in their Junior programs, Sec. St. 3-4, 9-10, 13, and 17, Economics 1-2, and Education 51, 52, and 61; in the Summer Session between their Junior and Senior years Education-Commercial subjects 93, *Recent Problems in the Teaching of Commercial Subjects in the High School*; and in their Senior programs, Sec. St. 11 and 18 and Education-Commercial Subjects 94, *Supervised Teaching in Commercial Subjects*. Such students should enroll for 18 semester credits in at least three semesters in order to earn the 128 credits required for the degree.

The Secretarial Curriculum is outlined in detail on page 143. Students registered in it are held for the requirements expected of students in all Prescribed Curriculums as set forth on page 132. Secretarial majors must earn grades of C or better in the following courses: Sec. St. 3-4, 9-10, 17; Sec. St. 11, 13, 18 (unless excused in accordance with the statement below); Sec. St. 22, *Advanced Transcription*, Sec.

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St. 23-24, *Business Writing*, Economics, or Accounting (any Economics or Accounting course, whether listed in the Curriculum or not, will be accepted), 4-11 credits, (a total of 24 semester credits).

Students transferring from collegiate institutions and high school students with previous training in Secretarial subjects are required to take the following courses: Sec. St. 3-4, 9-10, 17; Sec. St. 11, 13, 18 (unless excused). These students may be excused from

Sec. St. 11 by passing a 40-period certificate test.

Sec. St. 13 by passing a theory and practice test on each of the machines taught.

Sec. St. 18 by giving satisfactory evidence of having done acceptable Secretarial work in a business office for one year. Work done for relatives will not be considered.

Transfers and high school students who have had one year of Gregg shorthand (or the equivalent of one year) in another institution and have earned a grade of 80 or better (where the passing grade is 70) will not be allowed to enroll in Sec. St. 1 for credit; likewise, those students who have had one year of typewriting (or the equivalent) in another institution and have earned a grade of 80 or better (where the passing grade is 70) will not be allowed to enroll in Sec. St. 7 for credit.

Secretarial majors who have had Sec. St. 5 in the University of New Hampshire or a similar course in another collegiate institution, or one semester of typewriting in high school or preparatory school will be required to enter Sec. St. 27 instead of Sec. St. 7.

Students interested are advised to consult with the Supervisor, Professor Doris Tyrrell, Room 4, Morrill Hall.

**Two-Year Secretarial Curriculum*

The Two-Year Secretarial Curriculum offers high school graduates the opportunity to prepare for positions in which the demand is for mature workers who are equipped with certain technical skills; who have broadened their educational horizon through contact with the academic world; and who have had a degree of office experience.

An important feature of the Two-Year program is the plan by which qualified students are able to earn a large part of their expenses and at the same time gain practical experience by working in University offices.

After completing 64 credits of prescribed and elected courses (two years of full-time studying), with a grade point average of at least 2.0, an appropriate certificate will be granted.

**No students will be admitted to this Curriculum in 1946-47.*

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Subsequently, a student may qualify for the Bachelor's degree by meeting the requirements of a chosen major or Prescribed Curriculum. If the Four-Year Secretarial Curriculum is selected, the degree can be earned after two years of additional study.

Students who have not had all of the subjects required for admission to the Four-Year Curriculums but who have excellent records may be considered for admission to the Two-Year Curriculum. Such students will not be allowed to transfer to any other curriculum unless admitted to it by the Committee on Admissions. Students will be admitted under one of the following plans:

Plan A. Students admitted under this plan will work half time in Campus offices, earning \$35 a month, and study half time. Although three years will be required to complete the work for the Certificate, the number of credits earned will represent two years of full-time study. Applicants should have taken two years of Shorthand and Typewriting (or one year of Shorthand and Typewriting and one year of Office Practice) in high school.

Continuance in this plan is contingent upon the student's doing satisfactory work both in class and in part-time employment.

Plan B. Students following this plan will work less than half time and may earn up to \$20 a month. Although between two and three years will be required to complete the work for the Certificate, the number of credits earned will represent two years of full-time study. Applicants should have taken at least one year of Shorthand and Typewriting in high school.

Continuance in this plan is contingent upon the student's doing satisfactory work both in class and in part-time employment.

Plan C. This plan will be followed by students who are not working part time and who will complete the requirements for the Certificate in two years.

Candidates for a Certificate in the Two-Year Secretarial Curriculum must complete 64 semester credits, 35 of which must be with a grade point average of at least 2.0. Under Plans A and B the grade of C or better must be earned in the following courses:

Sec. St. 3-4, 6 cr.; Sec. St. 9-10, 4 cr.; Sec. St. 11, 2 cr. (unless excused from course in accordance with conditions described below); Sec. St. 13, 2 cr. (unless excused from course in accordance with conditions described below); Sec. St. 19-20, 4 cr.; Business Administration 1-2, Sec. St. 23-24, or Sec. St. 22, 2-4 cr. (a total of 20 semester credits).

Under Plan C, grades of C or better must be earned in the following courses:

Sec. St. 3-4, 6 cr.; Sec. St. 9-10, 4 cr.; Sec. St. 11, 2 cr. (unless excused

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from course in accordance with conditions described below); Sec. St. 13, 2 cr. (unless excused from course in accordance with conditions described below); Sec. St. 17-18, 6 cr. (unless excused from course in accordance with conditions described below); Business Administration 1-2, Sec. St. 23-24, or Sec. St. 22, 0-5 cr.; and if more than 5 credits are needed to complete 20 semester credits, a social science, 3 cr.

Grades of C in the courses listed are based on production tests and represent as nearly as possible the performance of the average stenographer or secretary in the skill in which the testing is done.

Students transferring from collegiate institutions and high school students with previous training in Secretarial subjects are required to take the following courses: Sec. St. 3-4, 9-10, 17; Sec. St. 11, 13, 18 (unless excused or in Plan A or B). Students may be excused from:

Sec. St. 11, *Filing*, by passing a 40-period certificate test. Sec. St. 13, *Office Machines*, by passing a theory and practice test on each of the machines taught. Sec. St. 18, *Office Practice*, by giving satisfactory evidence of having done acceptable Secretarial work in a business office for one year. Work done for relatives will not be considered.

Transfer students and high school students who have had one year of Gregg shorthand (or the equivalent of one year) in another institution and have earned a grade of 80 or better (where the passing grade is 70) will not be allowed to enroll in Sec. St. 1 for credit; likewise, those students who have had one year of typewriting (or the equivalent) in another institution and have earned a grade of 80 or better (where the passing grade is 70) will not be allowed to enroll in Sec. St. 7 for credit.

Secretarial majors who have had Sec. St. 5 in the University of New Hampshire or a similar course in another collegiate institution, or one semester of typewriting in high school or preparatory school, will be required to enter Sec. St. 27 instead of Sec. St. 7.

Students interested are advised to consult with the Supervisor, Professor Doris Tyrrell, Room 4, Morrill Hall.

Social Service Curriculum

Social Service includes, among others, the following fields: family case work, child care, child placement, settlement and neighborhood house, institutional work for defectives and dependents, municipal and county relief work, probation, correctional school and prison service, Y.M.C.A. and Y.W.C.A. secretarial service, municipal playground direction, child guidance clinics, community chest work, rural community organization.

Students may prepare for Social Work as a career under one of three plans. In every way the most desirable is to take the full four years at

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the University as a broad preparation for a Two-Year professional course in a recognized School of Social Work. If the resources necessary for such extended professional training are lacking, it is possible to acquire the fundamental principles and techniques of Social Service by selecting the Social Service Curriculum. To meet the needs of students desiring supervised urban training, three years may be taken at the University, and the fourth at an approved School of Social Work. The requirement of the Senior year in residence will be waived and the degree awarded by the University on the successful completion of the fourth year in such a school.

The student should not confuse the Social Service Curriculum with the major in Sociology in the General Liberal Arts Curriculum. The Social Service Curriculum is essentially vocational.

The program is outlined in detail on page 145. Students registered in it are held for the requirements expected of students in all Prescribed Curriculums which are set forth on page 132.

It should be noted that while the field work requirements of Sociology 97, 98 may be completed during the college year in connection with a neighboring social agency (see course description), it is strongly recommended that, where possible, students arrange to satisfy the requirement by spending the summer preceding the Senior year in practical work under the supervision of a settlement, correctional institution, or case work agency in Boston, Pittsburgh, Cleveland, Chicago, or other urban center.

Students interested are advised to consult the Supervisor, Professor C. W. Coulter, Room 201, Morrill Hall.

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PREPARATION FOR TEACHING

UNIVERSITY TEACHER PREPARATION CURRICULUMS

The University of New Hampshire has accepted the responsibility of preparing teachers for the secondary schools of New Hampshire and neighboring states. Two types of teacher preparation programs are offered. General Liberal Arts Curriculum students may follow the advisory program of studies entitled the University Teacher Preparation Program. Then there are Prescribed Curriculums preparing teachers in the fields of Agriculture, Art, Home Economics, Music, and Physical Education. On pages 124 through 127 appear descriptions of these programs of study. Students interested in preparing for teaching are urged to become thoroughly familiar with the requirements of all the Teacher Preparation Programs before they make a choice of a particular program. This section of the Catalogue includes descriptions of Teacher Preparation Programs offered by the University, not merely those offered by Departments in the College of Liberal Arts.

COURSES IN PROBLEMS IN THE TEACHING OF HIGH SCHOOL SUBJECTS

The courses in problems in the teaching of high school subjects are listed on page 205 and are open only to students who have completed the course in Principles and Problems of Teaching in the Secondary Schools (Education 61) in addition to the courses in the subject and related subjects designated as prerequisites. From these courses in Problems in the Teaching of High School Subjects the student planning to complete the University Teacher Preparation Curriculum selects his courses in the fields of his teaching major and teaching minor. To be eligible for Supervised Teaching in a subject the student must complete the course in the problems of teaching that subject with a grade of at least C.

COURSES IN SUPERVISED TEACHING. The work in Supervised Teaching is under the direction of the Professor and Assistant Professor of Education serving as Director and Assistant Director of student teaching. Students teach under the general direction of the members of the University Faculty conducting the courses in problems of teaching the various school subjects. Students teach under the immediate direction of selected classroom teachers in high schools approved by the University.

In the Supervised Teaching Courses the student participates in the conduct of class exercises and in the control of the classroom, at first chiefly as an observer, but gradually entering into teacher responsibilities until complete charge of the classroom is assumed.

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This work is required in the University Teacher Preparation Program, but will be open only to students whose applications are approved by the Head of the Department of Education and the Supervisor of Student Teaching in the subject or subjects in which the applicant desires to do supervised teaching. Applications should be filed in the Office of the Department of Education on or before November 15 of the academic year in which the supervised teaching is to be done. *No applications will be considered unless the applicant has completed with a grade of at least C the following courses in Education: 42, 51, 52, 61 and, with an average grade of C or better, at least 18 semester credits in the subject-matter field in which he desires to teach under supervision.*

The applicant must also complete with a grade of at least C a course in the problems of teaching the subject in which he desires to do supervised teaching.

PREScribed CURRICULUMS IN TEACHER PREPARATION

A student electing the Teacher Preparation Curriculum in Agriculture must meet the general and specific requirements for a degree described on pages 71 and 72 and applicable to all students registered in the College of Agriculture. His course of study will follow a broad general program rather than a specialization in any particular field. Furthermore, he must meet the State Requirements for Certification which include one semester of practice teaching, 8 additional credits of courses in Education, and 8 credits of Agricultural Engineering.

There is a rapidly increasing demand for teachers of Agriculture in our secondary schools. Local school boards are beginning to appreciate more fully the value of instruction in agriculture, both for the boys who will engage in agriculture after leaving high school, and as electives to maintain the interest of those young men who may wish to take at the University further education in this basic industry. As a result, there are a good many positions open for the young men who wish to make the teaching of Agriculture a profession.

The first two years of the Teacher Preparation Curriculum in Agriculture are identical with the first two years of other Curriculums in Agriculture. For the Prescribed Program for the Freshman and Sophomore years, see page 79. For the specialized program of the Junior and Senior years, see page 80.

ART EDUCATION CURRICULUM. This Curriculum is designed to prepare teachers and supervisors of Art in the public schools. It offers a carefully balanced specialization in teaching methods, materials, and techniques, and conforms to the regulations set down by

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the New Hampshire State Board of Education for teachers and supervisors of Art, Drawing, and Design (other than Mechanical Drawing).

Freshmen who plan to enter this Curriculum should elect *Elementary Drawing and Design* (Arts 23, 24) in their first-year program.

Students who wish to prepare themselves to teach other subjects in addition to Art can do so by using their elective hours for this purpose. Such a program should be worked out in consultation with Professor A. M. Stowe, of the Department of Education.

Students registered in the Curriculum are held for the requirements expected of students in all Prescribed Curriculums which are set forth on page 132.

Interested students should consult the Supervisor, Professor George R. Thomas, Room 304, DeMeritt Hall.

HOME ECONOMICS TEACHER PREPARATION CURRICULUM. The Home Economics Teacher Preparation Curriculum for secondary school teaching and Extension work, presented on page 147, aims to give adequate preparation to prospective teachers in the subject matter of the several phases of the field of Home Economics; to acquaint them with educational procedures and modern methods of teaching, as well as to give a general education. The program is professional in character.

The Teacher Preparation Curriculum provides for courses in general as well as special methods. Students spend the first part of the second semester of the Senior year in Supervised Teaching in approved high schools. The last three to four weeks of the semester are spent on the Campus in an intensive seminar where deficiencies revealed during the practice teaching period may be translated into assets. Graduate study is necessary for students who plan to be teachers of Home Economics in colleges and universities.

Women students interested in entering Extension work, either as home demonstration agents or as boys' and girls' club agents in the 4-H Club program, are advised to follow the Teacher Preparation Program. An opportunity is offered to such students to obtain some practical experience in Extension work through Home Economics 48, *Field Work in Institutional Practice and Extension*, during the summer between the Junior and Senior years. A limited number of opportunities to do practice Extension work during the latter part of the Senior year is available to women students who have shown special aptitude in previous field experience in Extension work.

The Curriculum is outlined in detail on page 147. Students registered in it are held for the requirements expected of students in all Prescribed Curriculums, which are set forth on page 132.

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Students who are interested should consult the Supervisor, Professor Helen F. McLaughlin, Room 209, Pettee Hall.

THE UNIVERSITY PHYSICAL EDUCATION TEACHER PREPARATION CURRICULUM FOR MEN. For men students who plan to prepare themselves for positions as teachers of Physical Education or Directors of Physical Education, the University has organized the University Physical Education Teacher Preparation Curriculum for Men (see page 148). This Curriculum is a modification of the University Teacher Preparation Program which will enable men to prepare themselves to teach in two subject-matter fields as well as in Physical Education. It is open to men who have satisfactorily completed the Freshman year, and are approved by the Department of Physical Education for admission to Physical Education as a field of concentration. The satisfactory completion of this Curriculum will entitle the student, in addition to his Diploma, to a Certificate indicating the fact. All students enrolled in this Curriculum must in their Freshman and Sophomore years pass skill tests in at least four of the individual and two of the team activities offered in the required two-year program.

Where it is possible, student teachers, who are Physical Education students, will be given an opportunity to do Supervised Teaching in Physical Education in the field and will be enrolled for Education-Physical Education 94.

Candidates for the Certificate are required to complete satisfactorily a second teaching major of 24 semester credits and a teaching minor of 12 semester credits in subjects taught in high schools. Students interested in this program should consult with Professor Carl J. Lundholm, Room 5A, Field House.

THE UNIVERSITY PHYSICAL EDUCATION TEACHER PREPARATION CURRICULUM FOR WOMEN. For women students who plan to prepare themselves for positions as teachers of Physical Education, the University has organized the University Physical Education Teacher Preparation Curriculum for Women (see page 149). This Curriculum is a modification of the University Teacher Training Program which will enable women to prepare themselves to teach in two subject-matter fields as well as in Physical Education. It is open to women who have satisfactorily completed the Freshman year and are approved by the Department of Physical Education for admission to that field of concentration. Where it is possible, student teachers who are Physical Education students will be given an opportunity to do supervised teaching in Physical Education in the field. They may be enrolled in Education 94, Supervised Teaching in the teaching major or majors, during the second semester of the Senior year. An alternative program for the second semester has been arranged whereby students who remain on the Campus may elect Physical Education 92, *Directed Teaching*. This

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course provides an opportunity to teach Physical Education under supervision in near-by elementary and secondary schools.

Physical Education students are required to complete satisfactorily a second teaching major of 24 semester credits and a teaching minor of 12 semester credits in subjects taught in high schools.

Electives offered by the Department of Physical Education for Women are: Physical Education 24, *Organized Camping*, Physical Education 36, *Recreation Leadership*, Physical Education 53, 54, *Survey of Dance*, Physical Education 56, *Health Education*, Physical Education 73, 74, *The Theory and Coaching of Individual Sports for Women*, and a group of individual and dual sports which do not appear in the required Curriculum.

In addition, the following courses offered by other departments are suggested as valuable electives for Physical Education students: English 35, *Public Speaking*; Psychology 51, *Psychology of Childhood*; Psychology 47, *Mental Hygiene*; Music 11-12, *Elements of Music*; Sociology 1, 2, *Principles and Social Psychology*; Sociology 37, *Urban and Rural Sociology*; Sociology 42, *Community Organization*. Physical Education students are advised to choose non-professional electives in the Junior year.

Under Physical Education 3, 4, 13, 14, 5, 6, Physical Education students are required to include the following division of activities: one quarter each of the following: individual gymnastics, tennis, archery, community games, soccer or speedball, hockey, basketball, folk dancing, square dancing, and contemporary dancing.

Other activities in the Physical Education program may be taken under Electives. (See page 148.)

Students following any Teacher Training Curriculum in the University are urged to elect for Physical Education the above activities.

For information concerning this Curriculum, see Professor Marion Beckwith, 101A, New Hampshire Hall.

GUIDANCE OF STUDENTS PREPARING TO TEACH. Students who come to the University of New Hampshire for the purpose of preparing themselves for the teaching profession should consult with the Head of the Department of Education early in their Freshman year. Other students who are seriously considering teaching as a possible vocation are urged to consult with the Head of the Department of Education before making a decision.

While the University has organized curriculums designed to prepare students for the profession of teaching, it also recognizes that it is important that students be prepared to meet the teacher certification requirements of the states in which they may desire to teach. The Department of Education endeavors to keep its files of teacher

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certification requirements up to date. Students preparing to teach in states other than New Hampshire should, before the close of their Sophomore year, consult the Department of Education concerning the requirements of the states in which they desire to teach and the most effective ways of meeting those requirements.*

THE UNIVERSITY TEACHER PREPARATION PROGRAM**

The University Teacher Preparation Program presented on page 151 includes the basic courses which it is believed are needed in the preparation of secondary-school teachers. These courses are designed to give thorough preparation in subject-matter fields in which the individual desires to teach. The courses in Education aim to develop an appreciative understanding of adolescents and their educational needs, of our democratic society and its needs which our secondary schools should endeavor to meet, of the objectives and techniques of secondary-school teaching, and of the problems of teaching peculiar to the subject-matter fields in which the student intends to teach. The program also includes a semester of supervised teaching designed to give prospective teachers opportunity to teach under as nearly normal conditions as can be arranged.

It is important to note that the University Teacher Preparation Program may be completed not only by students majoring in the Department of Education, but also by students majoring in any of the Departments of the University offering work, the subject matter of which is offered in secondary schools. General Liberal Arts Curriculum students registered in and completing this program are released from the Sophomore Group Requirements of the General Liberal Arts Curriculum (see page 133). All other requirements of the General Liberal Arts Curriculum, including the Language requirement, must be met. Students satisfactorily completing this program are entitled to the degree awarded to students majoring in their respective subjects and also to a Certificate indicating that the University Teacher Preparation Program has been completed.

*The New Hampshire State Board of Education grants a license to teach in New Hampshire secondary schools to candidates whose courses have included twelve semester hours of college work in Education. All candidates must pass the examination set by the State Board in Program of Studies and School Law. They may offer in lieu of examinations certified college courses in Educational Psychology, Methods of Teaching (general or special), and secondary Education or School Management.

The following courses may be considered as work in Education: Educational Sociology, Educational Psychology, Practice Teaching, Methods of Teaching, History of Education, School Law, School Management, General Methods course, Special Methods course, and work in Tests and Measurements.

**This is *not* a Prescribed Curriculum.

COLLEGE OF LIBERAL ARTS

This program is sufficiently flexible to provide the differentiation necessary to meet the needs of students who may be planning to teach: (1) English and the Foreign Languages, (2) English and the Social Studies, (3) Mathematics and the Biological or Physical Sciences, or (4) the Commercial Subjects. Students who are planning to teach the Commercial Subjects take their teaching major and minors in the field of Economics and Business Administration. Such students should include in their programs the following courses: Secretarial Studies 7-8, in the Freshman year; Secretarial Studies 1-2, Economics 3, and Business Administration 1-2, in the Sophomore year; Secretarial Studies 3-4, 9-10, 13, and 17, and Economics 1-2, in the Junior year; Secretarial Studies 11 and 18, Commercial Subjects—Education 93 and Education-Commercial Subjects 94, in the Senior year.

Students who plan to complete the University Teacher Preparation Program in the teaching of History or Social Studies should elect European History (History 19, 20) in their Sophomore year.

Since the State of New Hampshire requires each candidate for certification to be prepared to teach three subjects which are referred to as "teaching major" and first and second "teaching minors,"* the University Teacher Preparation Program includes the requirement of the satisfactory completion of 24 semester credits in a teaching major and of 12 semester credits in each of two teaching minors. This work may include any courses in the respective subject-matter fields taken in college.

REQUIREMENTS FOR DEGREES IN THE COLLEGE OF LIBERAL ARTS

The degree of Bachelor of Science is conferred upon those students in the College of Liberal Arts who successfully complete the requirements of the Prescribed Curriculums and upon those who successfully complete the requirements of the General Liberal Arts Curriculum with majors in the biological or physical sciences. The degree of Bachelor of Arts is conferred upon all other students in the College of Liberal Arts who successfully complete degree requirements.

Each candidate for a degree in the College of Liberal Arts must complete successfully 128 semester credits, with at least a 2.0 grade point average. In addition, he must complete the requirements given below and those of the major field, or prescribed curriculum, as stated in the preceding paragraphs.

*The requirements of the State of New Hampshire are a teaching major of 18 semester credits, a first teaching minor of 12 semester credits, and a second teaching minor of 6 semester credits. For detailed information concerning teaching majors and minors, consult the Department of Education.

UNIVERSITY OF NEW HAMPSHIRE

A. General University Requirements

Physical Education for Men	Freshman and Sophomore years
Physical Education for Women	Freshman, Sophomore, and Junior years
Military Science for Men	Freshman and Sophomore years

B. General College Requirements

1. Special Freshman Requirements
 - *a. English 1-2 (Freshman English)
 - *b. A biological science (Biology 1-2) or a physical science (Chemistry 1-2, 3-4; Geology 1-2; Mathematics 1-2, 5-6; Physics 1, 2)
2. Special History Requirement (to be taken in either the Freshman or Sophomore year)
 - *History 1, 2 (Introduction to Contemporary Civilization)
3. Sixteen semester credits will constitute a normal semester program. Any student registering for less than 12 or more than 18 semester credits must receive the permission of the Dean of the College.
4. Students who are *bona fide* candidates for teaching positions may use Physics 15, 16 to fulfill the Group II requirement with the permission of the Head of the Department of Education and the Dean of the College. Generally, only students preparing to teach English, languages, or the social sciences may be permitted to make this substitution.
5. All Freshmen in the College of Liberal Arts are assigned on registration to advisers who counsel them until they have selected major departments or prescribed curriculums.
6. Students in both the General Liberal Arts Curriculum and Prescribed Curriculums are advised against over-specialization. Although no attempt is made to limit by regulation the number of courses in a major or the professional courses in a Prescribed Curriculum, more than 36 semester credits in courses in the major department, or more than 66 semester credits in professional courses in a Prescribed Curriculum, are deemed to constitute excessive concentration. Supervisors will counsel students who seem to be concentrating to their detriment to elect courses more likely to contribute to the breadth of their education. The Dean of the College will consult with the supervisors with regard to over-specialization as it may appear in the programs of individual students.

*Not counted toward fulfillment of major or group requirements. Chemistry 3-4 is required for pre-medical students and recommended for all who intend to take advanced work in science.

COLLEGE OF LIBERAL ARTS

C. *Requirements for a Degree in the General Liberal Arts Curriculum*

Each candidate for a degree in the G.L.A. Curriculum must satisfy (1) the General University Requirements, (2) the General College Requirements as stated above, and (3) in addition must complete the requirements listed below and those of the major as described on pages 91 to 111, inclusive.

1. Special Language Requirement

All students pursuing the General Liberal Arts Curriculum are required to pass a reading test in French, German, Latin, or Spanish before graduation. This test will be based on two years of secondary-school language training. Graduates of normal schools or teachers' colleges who are pursuing the General Liberal Arts Curriculum to qualify for a degree in the field of elementary education are exempt from the language requirement.

2. Group Requirements

I. A student must successfully complete a year's work (two sequential semesters) in this group.

- a. Arts 31, 32
- b. English 13, 14; 15, 16
- c. Humanities 1-2
- d. Languages
- e. Music 33, 34
- f. Philosophy

II. A student must successfully complete a year's work (two sequential semesters) in this group. (Students electing a biological science during their Freshman year must elect a physical science during their Sophomore year, or *vice versa*.)

- a. Biological Science (Biology 1-2)
- b. Physical Science (Chemistry 1-2, 3-4; Geology 1-2; Mathematics 1-2, 5-6; Physics 1, 2)

III. A student must successfully complete at least 6 semester credits of work in this group.

- a. Economics
- b. Government
- c. Psychology
- d. Sociology

3. Divisional Requirements

The student must meet such divisional requirements as may be established in the division in which he is majoring.

4. Major Requirements

Each student pursuing the General Liberal Arts Curriculum shall select before the end of the second semester of the Fresh-

UNIVERSITY OF NEW HAMPSHIRE

man year a major department in which he must pass courses to a total of 24 semester credits with grades of C or better.* Courses in other departments closely related to the major courses may be counted with the consent of the major supervisor. Departments shall designate in the Catalogue in their descriptions of courses those which will not count for major credit. In addition to satisfactorily completing (1) 24 semester credits in the major field and (2) the divisional requirements, each student, at the discretion of his major department, may be required to:

a. Pass a comprehensive examination in his major field

or

b. Prepare a satisfactory paper on a subject in his field of concentration approved by his supervisor.

D. *Requirements for a Degree — All Prescribed Curriculums*

1. A student registered in a Prescribed Curriculum must satisfy the General University Requirements and the General College Requirements described in previous pages. (See pages 129-130.)
2. Inasmuch as all Prescribed Curriculums prepare for specific vocations, students selecting them are held for the successful completion of all the courses prescribed and generally in the sequence in which they are arranged in the Curriculum. (See pages 134-150.)
3. A student pursuing a Prescribed Curriculum must meet the quality requirements established for that Curriculum. (See pages 112-127.)

*Any student who acquired major credit prior to October 1, 1944, may satisfy his major requirements with 75 or better.

COLLEGE OF LIBERAL ARTS

GENERAL LIBERAL ARTS CURRICULUM

	<i>First Semester Credits</i>	<i>Second Semester Credits</i>
FRESHMAN YEAR		
Mil. Sci. 1-2	1½	1½
P. E. 31, 32 (<i>For men</i>)	1½	1½
P. E. 1, 2 (<i>For women</i>)	1	1
P. E. 1.5, 2.5 (<i>For women</i>)	1	1
*Hist. 1, 2 <i>Introduction to Contemporary Civilization</i> ...	3	3
†A Biological Science (<i>Biol. 1-2</i>) or a <i>Physical Science</i> (<i>Chem. 1-2; §Chem. 3-4; Geol. 1-2; Math.</i> <i>1-2; Math. 5-6; or Phys. 1, 2</i>)	3-4	3-4
Eng. 1-2 Freshman English	3	3
Electives to meet semester requirements		
	<hr/> 16	<hr/> 16
SOPHOMORE YEAR		
Mil. Sci. 3-4	1½	1½
P. E. 3, 4 (<i>For women</i>)	1	1
P. E. 33, 34 (<i>For men</i>)	1½	1½
*Hist. 1, 2 <i>Introduction to Contemporary Civilization</i> ...	3	3
Elect one year's work from each of the three following groups: (See group requirements page 131.)		
Group I. Arts 31, 32; English 13, 14; 15, 16; Humanities 1-2; Languages; Music 33, 34; Philosophy	3	3
Group II. †A biological science (<i>Biol. 1-2</i> or a physical science (<i>Chem. 1-2; §Chem.</i> <i>3-4; Geol. 1-2; Math. 1-2; Math.</i> <i>5-6; or Phys. 1, 2</i>)	3-4	3-4
Group III. Economics, Government, Psychology, Sociology	3	3
Electives to meet semester requirements		
	<hr/> 16	<hr/> 16
JUNIOR YEAR		
P. E. 5, 6 (<i>For women</i>)	1	1
Major courses and electives to meet semester requirements		
	<hr/> 16	<hr/> 16
SENIOR YEAR		
Major courses and electives to meet semester requirements	<hr/> 16	<hr/> 16

†Students electing a Biological Science during their Freshman year must elect a Physical Science during their Sophomore year, or *vice versa*.

§Chemistry 3-4 is required for pre-medical students and recommended for all who intend to take advanced work in Sciences.

*Hist. 1, 2 may be taken in either the Freshman or Sophomore year.

DETAILED DESCRIPTION OF THIS CURRICULUM APPEARS ON PAGES 91-111
AND PAGE 131.

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BUSINESS ADMINISTRATION

The following Curriculum is designed for those who desire a general training in Business without specialization in a particular field.

BUSINESS CURRICULUM

	First Semester Credits	Second Semester Credits
FRESHMAN YEAR		
Mil. Sci. 1-2 (<i>For men</i>)	1½	1½
P. E. 31, 32 (<i>For men</i>)	1½	1½
P. E. 1, 2 (<i>For women</i>)	1	1
P. E. 1.5, 2.5 (<i>For women</i>)	1	1
*Biol. or Phys. Sci	4	4
Hist. 1, 2 (<i>Introduction to Contemporary Civilization</i>)...	3	3
Eng. 1, 2	3	3
B. Ad. 1-2 (<i>Accounting</i>)	4	4
	16	16
SOPHOMORE YEAR		
Mil. Sci. 3-4 (<i>For men</i>)	1½	1½
P. E. 33, 34 (<i>For men</i>)	1½	1½
P. E. 3, 4 (<i>For women</i>)	1	1
Econ. 3 (<i>Economic and Industrial History of U.S.</i>)	3	
B. Ad. 24 (<i>Introduction to Business</i>)		3
Econ. 1-2, (<i>Principles of Economics</i>)	3	3
Elective from Group A	3	3
Elective from Group B	3	3
Elective from other than Econ. and B. Ad.		
	16	16
Group A.—Arts 31, 32; English 13, 14; 15, 16; Humanities 1-2; Languages; Music 33, 34; Philosophy		
Group B.—Government; History; Psychology; Sociology		
JUNIOR YEAR		
B. Ad. 21-22 (<i>Commercial Law</i>)	3	3
Econ. 51 (<i>Labor Economics</i>), 24 (<i>Marketing</i>)	3	3
B. Ad. 23 (<i>Business Communication</i>)	3	3
Electives from Econ. and B. Ad.	3	
Eng. 35 (<i>Public Speaking</i>)		3
Electives		
	16	16
SENIOR YEAR		
Econ. 53 (<i>Money and Banking</i>), B. Ad. 28 (<i>Personnel Adm.</i>)	3	3
B. Ad. 31 (<i>Business Organization and Finance</i>), B. Ad. 34, (<i>Business Management</i>)	3	3
Electives from Econ. and B. Ad.	3	3
Elective		
	16	16

*Students offering one or more units of Physical Science for admission are advised to elect *Biol. 1-2*. Students offering one or more units of Biological Science for admission are advised to elect a Physical Science, or *Math. 1-2*.

COLLEGE OF LIBERAL ARTS

The following Curriculum is designed for those desiring to specialize in Accounting.

ACCOUNTING OPTION

	<i>First Semester Credits</i>	<i>Second Semester Credits</i>
SOPHOMORE YEAR		
Mil. Sci. 3-4 (<i>For men</i>)	1½	1½
P. E. 33, 34 (<i>For men</i>)	1½	1½
P. E. 3, 4 (<i>For women</i>)	1	1
Econ. 3 (<i>Economic and Industrial History of U.S.</i>)....	3	3
B. Ad. (<i>Introduction to Business</i>)		
Econ. 1-2 (<i>Principles of Economics</i>)	3	3
B. Ad 3-4 (<i>Intermediate Accounting</i>)	3	3
Elective from Group A	3	3
	<hr/> 16	<hr/> 16

Group A.—Arts (31, 42); English (13, 14; 15, 16);
Humanities (1-2); Languages; Music (33-34);
Philosophy.

JUNIOR YEAR

P. E. 5, 6 (<i>For women</i>)	1	1
B. Ad. 7, 8 (<i>Cost Accounting</i>)	3	3
B. Ad. 21-22 (<i>Business Law</i>)	3	3
B. Ad. 23 (<i>Business Communications</i>)	3	
Eng. 35 (<i>Public Speaking</i>)		3
B. Ad. 31 (<i>Business Organization and Finance</i>)	3	
Econ. 24 (<i>Marketing</i>)		3
Electives from Group B	3	3
Electives		
	<hr/> 16	<hr/> 16

Group B.—Government; History; Psychology; Sociology

SENIOR YEAR

B. Ad. 5 (<i>Advanced Accounting</i>)	3	3
B. Ad. 6 (<i>Federal Income Taxes</i>)		
B. Ad. 11 (<i>Auditing</i>), B. Ad. 12 (<i>Accounting Systems</i>)	3	3
Econ. 53 (<i>Money and Banking</i>), B. Ad. 28 (<i>Personnel Administration</i>)	3	3
Electives		
	<hr/> 16	<hr/> 16

*Students offering one or more units of Physical Science for admission are advised to elect *Biol. 1-2*. Students offering one or more units of Biological Science for admission are advised to elect a Physical Science, or *Math. 1-2*.

DETAILED DESCRIPTION OF THIS CURRICULUM APPEARS ON PAGE 112.

UNIVERSITY OF NEW HAMPSHIRE

HOSPITAL DIETETICS CURRICULUM

FRESHMAN YEAR	First Semester Credits	Second Semester Credits
P. E. 1, 2	1	1
P. E. 1.5, 2.5	1	1
Eng. 1-2	3	3
Hist. 1, 2, <i>Introduction to Contemporary Civilization</i>	3	3
Biol. 1-2, <i>Man and the Living World</i>	4	4
H. Ec. 15-16, <i>Foods</i>	3	3
Elective	1	1
	<hr/> 16	<hr/> 16
SOPHOMORE YEAR		
P. E. 3, 4	1	1
Chem. 1-2, <i>General Chemistry</i>	4	4
Zool. 17-18, <i>Human Anatomy and Physiology</i>	3	3
Econ. 1-2, <i>Principles of Economics or Sociology</i> 1, 2; <i>Principles of Sociology; Social Psychology</i>	3	3
Elective from Group 1, <i>The Humanities</i> . (See page 131.)	3	3
Elective	2	2
	<hr/> 16	<hr/> 16
*JUNIOR YEAR		
P. E. 5, 6.....	1	1
Agr. Chem. 5, <i>Organic and Biological Chem.</i>	5	
Agr. Chem. 6, <i>Chemistry of Food and Nutrition</i>	3	3
Home Ec. 25, 26, <i>Child Development</i>		3
H. Ec. 74, <i>Dietetics</i>		3
Home Ec. 49-50, <i>Quantity Cookery</i>	2	2
Psych. 1	3	
Elective, <i>Principles of Psychology</i>	2	4
	<hr/> 16	<hr/> 16
SENIOR YEAR		
Ag. Eng. 38, <i>Household Mechanics</i>		3
Bact. 1, <i>General Bacteriology</i>	4	
Home. Ec. 41, <i>Institutional Management</i>	3	
H. Ec. 43-44, <i>Institutional Practice</i>	2	2
H. Ec. (45), <i>Furniture Equipment and Textiles</i>		3
H. Ec. (75), <i>Diet Therapy</i>		3
H. Ec.-Ed. 91	3	
Elective	4	5
	<hr/> 16	<hr/> 16

*It is strongly recommended that during the summer between Junior and Senior years students have some practical experience in hospital work for which they may receive 4-6 credits in *H. Ec. 48*.

DETAILED DESCRIPTION OF THIS CURRICULUM APPEARS ON PAGE 113.

COLLEGE OF LIBERAL ARTS

HOTEL ADMINISTRATION CURRICULUM

FRESHMAN YEAR

	First Semester Credits	Second Semester Credits
M. S. 1-2, <i>Military Fundamentals</i>	1½	1½
P. E. 31, 32	½	½
Eng. 1-2, <i>Freshman English</i>	3	3
Chem. 1-2, <i>General Chemistry</i>	4	4
History 1, 2, <i>Introduction to Contemporary Civilization</i> ..	3	3
B. Ad. 1-2, <i>Elementary Accounting</i>	4	4
H. A. 1, <i>Orientation</i>	½	
H. A. 40, <i>Lectures on Hotel Management</i>		½
	<hr/> 16½	<hr/> 16½

SOPHOMORE YEAR

Mil. Sci. 3-4	1½	1½
P. E. 33, 34	½	½
B. Ad. 9-10, <i>Hotel Accounting</i>	3	3
Econ. 1-2, <i>Principles of Economics</i>	3	3
M. E. 19, <i>Mechanical Drawing</i>	2	
H. A. 21, 22, <i>Introductory Hotel Engineering</i>	4	4
H. Ec. 15-16, <i>Foods</i>	3	3
H. A. 42, <i>Lectures on Hotel Management</i>		½
Suggested Electives: Ent. 55, <i>Household Insects</i> ; H. A. 23, <i>Stewarding</i> ; Hort. 28, <i>Elementary Landscape Gardening</i> ; Hort. 61, <i>Harvesting and Marketing</i>		
	<hr/> 17	<hr/> 15½

JUNIOR YEAR

E. E. 31, <i>Circuits and Appliances</i>	4	
H. Ec. 45, <i>Furniture, Equipment and Textiles</i>	3	
H. Ec. 49-50, <i>Quantity Cookery</i>	2	2
H. A. 5, <i>Hotel Operation</i>	3	
H. A. 44, <i>Lectures on Hotel Management</i>		½
M. E. 40, <i>Heating and Ventilating</i>		2
Psych. 33, <i>Industrial Psychology</i>	3	
Psych. 62, <i>Psychology of Personnel</i>		3
Electives:		
See Sophomore electives, and		
A. H. 8, <i>Meat and Its Products</i> ; <i>Livestock Markets</i> ;		
Econ. 53, 54, <i>Money and Banking</i> ; Econ. 61, <i>Public Regulation of Business</i> ; French 1, 2, <i>Elementary French</i> ; H. A. 6, <i>Hotel Public Relations</i>		
	<hr/> 16	<hr/> 16½

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*SENIOR YEAR	<i>First Semester Credits</i>	<i>Second Semester Credits</i>
B. Ad. 21-22, <i>Commercial Law</i>	3	3
H. A. 46, <i>Lectures on Hotel Management</i>		1½
Electives:		
B. Ad. 5, 6, <i>Advanced Accounting; Federal Tax Accounting; H. A. 12, Financial Statements; H. Ec. 41, Institutional Management; Sec. St. 1-2, Short- hand; Sec. St. 7-8, Typewriting; Soc. 88, Recreation and Leisure</i>		
	<hr/> 15½	<hr/> 15½

*In addition to the requirements listed above, each student is required to secure before graduation a minimum of 20 points of Hotel Practice credit.

DETAILED DESCRIPTION OF THIS CURRICULUM APPEARS ON PAGE 114.

COLLEGE OF LIBERAL ARTS

INSTITUTIONAL ADMINISTRATION

FRESHMAN YEAR*

	<i>First Semester Credits</i>	<i>Second Semester Credits</i>
P. E. 1, 2	1	1
P. E. 1.5, 2.5	1	1
Eng. 1-2	3	3
Hist. 1, 2, <i>Introduction to Contemporary Civilization</i>	3	3
Biol. 1-2, <i>Man and the Living World</i>	4	4
H. Ec. 15-16, <i>Foods</i>	3	3
Elective	1	1
	<hr/> 16	<hr/> 16

SOPHOMORE YEAR

P. E. 3, 4	1	1
Chem. 1-2, <i>General Chemistry</i>	4	4
Econ. 1-2, <i>Principles of Economics</i> or Soc. 1, 2, <i>Principles of Sociology; Social Psychology</i>	3	3
Elective from Group 1, <i>The Humanities</i> (See page 131) ..	3	3
Elective	5	5
	<hr/> 16	<hr/> 16

*JUNIOR YEAR

H. Ec. 34, <i>Consumer Problems</i>		3
P. E. 5, 6	1	1
Ag. Chem. 5, <i>Organic and Biological Chemistry</i>	5	
Ag. Chem. 6, <i>Chemistry of Food and Nutrition</i>		3
H. Ec. 49-50, <i>Quantity Cookery</i>	2	2
H. Ec. 74, <i>Dietetics</i>	3	3
Psych. 1, <i>Principles of Psychology</i>	3	
Elective	2	2
	<hr/> 16	<hr/> 16

SENIOR YEAR

Bact. 1, <i>General Bacteriology</i>	4	
H. Ec. (45), <i>Furniture Equipment</i>		3
Ag. Eng. 38, <i>Household Mechanics</i>		3
H. Ec. 41, <i>Institutional Management</i>	3	
H. Ec. 43-44, <i>Institutional Practice</i>	2	2
H. Ec. (75), <i>Diet Therapy</i>		3
Elective	7	5
	<hr/> 16	<hr/> 16

*It is strongly recommended that during the summer between the Junior and Senior years, students have some practical experience in institutional work for which they may receive 4-6 credits in *H. Ec. 48*.

DETAILED DESCRIPTION OF THIS CURRICULUM APPEARS ON PAGE 114.

UNIVERSITY OF NEW HAMPSHIRE

NURSING CURRICULUM

FRESHMAN YEAR	First Semester Credits	Second Semester Credits
See Freshman requirements, page 133. (<i>Include Biol. 1-2</i>)		
Chem. 3-4, <i>General Chemistry</i>	4	4
	<hr/> 16	<hr/> 16
SOPHOMORE YEAR		
P. E. 3, 4	1	1
Zool. 17-18, <i>Human Anatomy and Physiology</i>	3	3
Elect courses from the following: Bact. 1, <i>General</i> ; Bact. 4, <i>Public Health and Sanitation</i> ; H. Ec. 15-16, <i>Foods</i> ; Psych. 1, <i>Elementary General Psychology</i> ; Soc. 1, <i>Principles of Sociology</i> ; Soc. 2, <i>Social Psychology</i> .		
	<hr/> 16	<hr/> 16
JUNIOR YEAR		
P. E. 3, 4	1	1
Agr. Chem. 5, <i>Organic and Biological Chemistry</i>	5	
Zool. 53, <i>Histology</i>	4	
Elect courses from the following: Agr. Chem. 6, <i>Chemistry of Food and Nutrition</i> ; Bact. 8, <i>Pathogenic Bacteriology</i> ; Econ. 1-2, <i>Principles of Economics</i> ; Educ. 42, <i>Educational Psychology of Adolescence</i> ; H. Ec. 25, 26, <i>Child Development</i> ; Psych. 47, <i>Mental Hygiene</i> ; Psych. 51, <i>Psychology of Childhood</i> ; Soc. 72, <i>The Family</i> ; Soc. 73, <i>Principles of Social Case Work</i> ; Zool. 54, <i>Embryology</i> ; Zool. 59-60, <i>Advanced Physiology</i> .		
	<hr/> 16	<hr/> 16

TRAINING PERIOD

Credit earned in training at an approved hospital will apply towards a Bachelor's degree.

DETAILED DESCRIPTION OF THIS CURRICULUM APPEARS ON PAGE 115.

COLLEGE OF LIBERAL ARTS

OCCUPATIONAL THERAPY CURRICULUM

FRESHMAN YEAR		First Semester Credits	Second Semester Credits
See Freshman requirements, page 133. (Include Biol. 1-2)			
O. T. 23-24, <i>Elementary Drawing and Design</i>		2	2
Soc. 1, <i>Principles of Sociology</i>		3	
Soc. 2, <i>Social Psychology</i>			3
		<hr/> 17	<hr/> 17
SOPHOMORE YEAR			
P. E. 3, 4		1	1
Arts (11), <i>Modeling</i>			2
Geog. 1, 2, <i>Geog. of the West. and East. Hem.</i>		2	2
O. T. 1, <i>Handicrafts</i>		2	
O. T. 8, <i>Principles of Woodworking</i>			2
O. T. 9, <i>Lettering and Printing</i>		2	
Psych. 1, <i>Elementary General Psychology</i>		3	
Psych. (47), <i>Mental Hygiene</i>			3
Zool. 17-18, <i>Human Anatomy and Physiology</i>		4	4
Elective			
		<hr/> 16	<hr/> 16
JUNIOR YEAR			
P. E. 5, 6		1	1
Arts 39, <i>Elementary Photography</i>		3	
*H. Ec. 25, 26, <i>Child Development</i>		3	3
O. T. 4, <i>Handicrafts</i>			3
O. T. 15-16, <i>Ceramics</i>		2	2
O. T. 47, <i>Theory of Occupational Therapy</i>		2	
Psych. 54, <i>Psychopathology</i>			3
Zool. 19, <i>Kinesiology</i>		3	
Zool. 64, <i>Neurology</i>			4
Elective		2	
		<hr/> 16	<hr/> 16
SENIOR YEAR			
Hort. 40, <i>Outdoor Floriculture</i>			3
O. T. 5, 6, <i>Handicrafts</i>		3	3
O. T. 45, <i>Elementary Library Methods</i>		1	
O. T. 48, <i>Theory of Occupational Therapy</i>			3
**O. T. 49-50, <i>Clinical Subjects</i>		2	2
Soc. 71, <i>Crime and Its Social Treatment</i>		3	
Elective		6	4
		<hr/> 15	<hr/> 15

*A male student may substitute an approved elective

**Given in alternate years; offered in 1946-1947

DETAILED DESCRIPTION OF THIS CURRICULUM APPEARS ON PAGE 116.

UNIVERSITY OF NEW HAMPSHIRE

PRE-MEDICAL CURRICULUM

FRESHMAN YEAR	First Semester Credits	Second Semester Credits
Mil. Sci. 1-2	1½	1½
P. E. 31, 32	½	½
Biol. 1-2, <i>Man and the Living World</i>	4	4
Chem. 3-4, <i>General Chemistry</i>	4	4
Eng. 1-2	3	3
Elective: Lang., <i>French or German</i> ; Math.	3	3
	<hr/> 16	<hr/> 16
SOPHOMORE YEAR		
Mil. Sci. 3-4	1½	1½
P. E. 33, 34	½	½
Chem 25, 26, <i>Introductory Quantitative and Qualitative Analysis</i>	3	3
Hist. 1, 2, <i>Introduction to Contemporary Civilization</i>	3	3
Zool. 7-8, <i>General Zoology and Comparative Anatomy</i>	4	4
Elective: Lang., <i>French or German</i> ; Math 1-2	4	4
	<hr/> 16	<hr/> 16
JUNIOR YEAR		
Chem. 53-54, <i>Organic Chemistry</i>	5	5
Phys. 5-6, <i>Pre-Medical Physics</i>	5	5
Electives: <i>Advanced Chem.; Advanced Eng.; Advanced Zool.; Bact.; Econ.; Foreign Lang.; Govt.; Hist.; Math.; Psych.; Soc.</i>	6	6
	<hr/> 16	<hr/> 16
SENIOR YEAR		
Advanced Zoology	4	4
Electives: <i>Advanced Bact.; Advanced Eng.; Advanced Zool.; Econ.; Foreign Lang.; Govt.; Hist.; Math.; Physiological Chem.; Psych.; Soc.</i>	12	12
	<hr/> 16	<hr/> 16

DETAILED DESCRIPTION OF THIS CURRICULUM APPEARS ON PAGE 117.

COLLEGE OF LIBERAL ARTS

SECRETARIAL CURRICULUM*

FRESHMAN YEAR

See Freshman requirements, page 130.
Electives to meet semester requirements

<i>First Semester Credits</i>	<i>Second Semester Credits</i>
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16	16
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SOPHOMORE YEAR

P. E. 3, 4 1 1
Econ. 3, *Economic and Commercial Development of the U.S.* 3
Eng. (*A year of English*) 3 3
Sec. St. 1-2, *Shorthand* 3 3
Sec. St. 7-8, *Typewriting* 2 2
Sec. St. 23-24, *Business Writing* 3 3
Suggested electives to meet semester requirements:

16	16
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JUNIOR YEAR

P. E. 5, 6 1 1
B. Ad. 1-2, *Elementary Accounting* 4 4
Econ. 1-2, *Principles of Economics* 3 3
†Sec. St. 3-4, *Advanced Shorthand* 3 3
†Sec. St. 9-10, *Advanced Typewriting* 2 2
Electives to meet semester requirements 3 3

16	16
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SENIOR YEAR

Sec. St. 11, *Filing* 2
Sec. St. 13, *Office Machines* 2
Sec. St. 17-18, *Secretarial Office, Procedure and Practice*. 3 3
Sec. St. 22, *Advanced Transcription* (Not required) 3
Electives to meet semester requirements 11 8

16	16
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*Students preparing to teach Secretarial Subjects must elect in addition a sufficient number of courses in Economics, Business Administration, and Education to meet state requirements.

†A grade of C or better in Sec. St. 8 will be required of students electing Sec. St. 9-10; and a grade of C or better in Sec. St. 2 will be required of students electing Sec. St. 3-4

DETAILED DESCRIPTION OF THIS CURRICULUM APPEARS ON PAGE 118.

UNIVERSITY OF NEW HAMPSHIRE

TWO-YEAR SECRETARIAL CURRICULUM*

(No students will be admitted to this Curriculum in 1946-47)

	<i>First Semester Credits</i>	<i>Second Semester Credits</i>
P. E. 1, 2 and 1.5, 2.5	2	2
B. Ad. 1-2, <i>Elementary Accounting</i>	4	4
Sec. St. 1-2, <i>Beginning Shorthand</i>	3	3
Sec. St. 7-8, <i>Beginning Typewriting</i>	2	2
Social Study	3	3
Electives	2	2
	<hr/> 16	<hr/> 16
	<i>Third Semester Credits</i>	<i>Fourth Semester Credits</i>
P. E. 3, 4	1	1
†Sec. St. 3-4, <i>Advanced Shorthand</i>	3	3
†Sec. St. 9-10, <i>Advanced Typewriting</i>	2	2
Sec. St. 11, <i>Filing</i>	2	
Sec. St. 13, <i>Office Machines</i>		2
Sec. St. 17-18, <i>Office Procedure and Practice</i>	3	3
Sec. St. 23-24, <i>Business Writing</i>	3	3
Electives	2	2
	<hr/> 16	<hr/> 16

*It is assumed that the entering student has had no commercial work in high school. Modifications in the program will be made to fit individual cases.

†A grade of C or better in Sec. St. 8 will be required of students electing Sec. St. 9-10; and a grade of C or better in Sec. St. 2 will be required of students electing Sec. St. 3-4.

COLLEGE OF LIBERAL ARTS

SOCIAL SERVICE CURRICULUM

FRESHMAN YEAR	First Semester Credits	Second Semester Credits
See Freshman requirements, page 130. (<i>Include Biol. 1-2</i>)		
Soc. 1, <i>Principles of Sociology</i>	3	3
Soc. 2, <i>Social Psychology</i>		
SOPHOMORE YEAR		
Mil. Sci. 3-4	1½	1½
P. E. 33, 34 (<i>For men</i>)	½	½
P. E. 3, 4 (<i>For women</i>)	1	1
Bact. 3, <i>Elements of Microbiology</i>	3	
Bact. 4, <i>Public Health and Sanitation</i>		3
Eng. (<i>A second year of English</i>)	3	3
Psych., <i>Elementary General Psychology</i>	3	
Soc. 41, <i>Social Pathology</i>	3	
Soc. 42, <i>Community Organization</i>		3
Electives: Bact. 2, <i>Food and Sanitary Bact.</i> ; H. Ec. 25, 26, <i>Child Development</i> ; Hist. 7, 8, <i>The United States from 1790 to 1900</i> ; Sec. St. 7-8, <i>Type- writing</i>		
	16	16
JUNIOR YEAR		
P. E. 5, 6 (<i>For women</i>)	1	1
Psych. 54, <i>Psychopathology</i> , or 47, <i>Mental Hygiene</i>		3
Soc. 71, <i>Crime and Its Social Treatment</i>	3	
Soc. 72, <i>The Family</i>		3
Soc. 73, <i>Principles of Social Case Work</i>	3	
Soc. 75, <i>Methods of Social Research</i>	3	
Suggested Electives: Econ. 1-2, <i>Principles of Economics</i> ; Govt. 1, 2, <i>American Government</i>	8	11
	18	18
SENIOR YEAR		
Soc. 84, <i>Methods of Social Progress</i>		3
Soc. 88, <i>Recreation and Leisure</i>		3
Soc. 95, 96, <i>Sociological Research</i>	3	3
Soc. 97, 98, <i>Social Service Field Work</i>	3	3
Suggested Electives: Eng. 35, <i>Public Speaking</i> ; Eng. 23, (<i>Writing Technical Reports</i>)	11	5
	17	17

DETAILED DESCRIPTION OF THIS CURRICULUM APPEARS ON PAGE 122.

UNIVERSITY OF NEW HAMPSHIRE

ART EDUCATION CURRICULUM

FRESHMAN YEAR	First Semester Credits	Second Semester Credits
See Freshman requirements, page 133.		
Arts 23, 24 <i>Elementary Drawing and Design</i>	3	3
Elective		
	<hr/> 16	<hr/> 16
SOPHOMORE YEAR		
Mil. Sci. 3-4	1½	1½
P. E. 3, 4 (<i>For women</i>)	1	1
P. E. 33, 34 (<i>For men</i>)	1½	1½
Arts 15, 16, <i>Ceramics</i>	2	2
Arts 25, 26, <i>Advanced Drawing and Design</i>	2	2
Arts 31, 32, <i>Introduction to the Arts</i>	3	3
Ed. 41, <i>Principles of Educational Psychology</i>	3	
Ed. 42, <i>Educational Psychology of Adolescence</i>		3
Elective		
	<hr/> 16	<hr/> 16
JUNIOR YEAR		
P. E. 5, 6 (<i>For women</i>)	1	1
Arts 29, 30, <i>Advanced Painting, Water Color</i>	3	3
Arts 35 (35) <i>Stagecraft</i>	½-1	½-1
Ed. 51, <i>Social Backgrounds of American Secondary Education</i> and Ed. 52, <i>Principles of American Secondary Education</i>	3	3
Secondary Education	3	3
Elective	8	8
	<hr/> 16	<hr/> 16
SENIOR YEAR		
Arts 3, <i>Handicrafts</i>	3	
Arts 29, <i>Advanced Painting, Oil</i>	3	
*Art-Ed. 91, <i>Problems of Teaching Art in Elem. Schools</i>	3	
*Art-Ed. 92, <i>Problems of Teaching Art in Secondary Schools</i>	3	
Ed.-Art 94, <i>Supervised Teaching</i>		6-12
Electives:		
†Educ. 45, <i>N. H. State Program of Studies and School Law</i>	2	
‡Educ. 61, <i>Prin. and Problems of Teaching in the Sec. School</i>	4	
	<hr/> 16	<hr/> 6-12§

*May be taken in Summer Session between Junior and Senior years.

†For students planning to teach in the state of New Hampshire.

‡For those students who plan to teach in Art and some other area.

§The student should take enough credits in Student Teaching to reach 128 needed for graduation. He may not, however, take less than 6 credits.

DETAILED DESCRIPTION OF THIS CURRICULUM APPEARS ON PAGES 124-125.

COLLEGE OF LIBERAL ARTS

HOME ECONOMICS TEACHER PREPARATION CURRICULUM

(For Teaching in High School and in Extension Work)

	First Semester Credits	Second Semester Credits
FRESHMAN YEAR		
P. E. 1, 2	1	1
P. E. 1.5, 2.5	1	1
Eng. 1-2	3	3
Hist. 1, 2, <i>Introduction to Contemporary Civilization</i>	3	3
H. Ec. 3, 4, <i>Clothing Selection; Textiles</i>	3	3
Elective	5	5
	<hr/> 16	<hr/> 16
SOPHOMORE YEAR		
P. E. 3, 4	1	1
Chem. 1-2, <i>General Chemistry</i>	4	4
Ed. 41, 42, <i>Principles of Educational Psychology; Educational Psychology of Adolescence</i>	3	3
H. Ec. 5-6, <i>Clothing Construction</i>	2	2
H. Ec. 15-16, <i>Foods</i>	3	3
Agr. Eng. 38, <i>Household Mechanics</i>	3	3
Elective	3	3
	<hr/> 16	<hr/> 16
JUNIOR YEAR		
P. E. 5, 6	1	1
*Ed. 51, 52, <i>Social Backgrounds of American Secondary Education; Principles of Am. Sec. Ed.</i>	3	3
H. Ec. 25, 26, <i>Child Development</i>	3	3
Agr. Eng. 31, <i>Home Building</i>	3	3
H. Ec. 32, <i>Home Furnishing</i>	3	3
H. Ec. 74, <i>Dietetics</i>	3	3
*Ed. 61, <i>Principles and Problems of Teaching in Secondary Schools</i>	4	4
Elective	2	3
	<hr/> 16	<hr/> 16
SENIOR YEAR		
H. Ec. 33, <i>Home Management</i>	3	3
H. Ec. 35, <i>Home Management House</i>	3	3
H. Ec. 83, <i>Home and Family Life</i>	3	3
H. Ec.-Ed. 91, <i>Problems in Teaching High School Economics</i>	3	3
H. Ec.-Ed. 94, <i>Supervised Teaching</i>	(6)	6-12
H. Ec.-Ed. 96, <i>Seminar</i>	3	3
Elective	4	1-7
	<hr/> 16	<hr/> 16

Suggested Elective: †Ed. 45, *N. H. State Program of Studies and School Law*.

*Not required of students specializing in Extension work. †Required of students planning to teach in New Hampshire.

DETAILED DESCRIPTION OF THIS CURRICULUM APPEARS ON PAGE 125.

UNIVERSITY OF NEW HAMPSHIRE

UNIVERSITY PHYSICAL EDUCATION TEACHER PREPARATION CURRICULUM FOR MEN

	First Semester Credits	Second Semester Credits
FRESHMAN YEAR		
See Freshman requirements, page 133. (<i>Include Biol. 1-2</i>)		
Basic course in second teaching major, <i>First year</i>	—	—
	16	16
SOPHOMORE YEAR		
Mil. Sci. 3-4	1½	1½
P. E. 33, 34	½	½
Educ. 41, <i>Principles of Educational Psychology</i>	3	
Educ. 42, <i>Educational Psychology of Adolescence</i>		3
P. E. 23, <i>Principles of Physical Education</i>	3	
Second teaching major, <i>Second year</i>	3	3
Zool. 17-18, <i>Human Anatomy and Physiology</i>	3	3
Elective	—	—
	16	16
JUNIOR YEAR		
*Educ. 45, <i>N. H. State Program of Studies and School Law</i>	2	
Educ. 51, <i>Social Backgrounds of American Secondary Education</i> , and Educ. 52, <i>Principles of American Secondary Education</i>	3	3
Educ. (61), <i>Principles and Problems of Teaching in Secondary Schools</i>		4
‡Ed. P.E. 93, <i>Directed Teaching in Physical Education</i>		3
P. E. 61, <i>Problems of Teaching in Physical Education</i>	3	
†Problems of coaching, <i>P.E. 45, 47 or 48</i>	2	
†Problems of coaching, <i>P.E. 40, 46</i>		2
Second teaching major	3	3
Elective, <i>First teaching minor</i>	3	3
	16	18
SENIOR YEAR		
‡Ed.-P.E. 93, <i>Directed Teaching in Physical Education</i>	3	
P. E. 65, <i>Administration of Physical Education in Secondary Schools</i>	3	
†Problems of coaching, <i>P.E. 45, 47 or 48</i>	2	
Problems in teaching, <i>Second teaching major, i.e., Eng.-Ed. 91, etc.</i>	3	
Second teaching major	3	
Supervised teaching in major or majors, <i>i.e., Ed-Eng. 94, etc.</i>		6-12
Elective:		
P. E. 63, <i>Care and Prevention of Athletic Injuries</i>	2	
	18	6-12§

*For students planning to teach in the State of New Hampshire.

†Two problems of coaching courses are required.

‡This course is required and may be elected in the second semester of the Junior or Senior year or the first semester of the Senior year.

§The student should take enough credits in Student Teaching to reach the 128 needed for graduation. He should not, however, take less than 6 credits.

DETAILED DESCRIPTION OF THIS CURRICULUM APPEARS ON PAGE 126.

COLLEGE OF LIBERAL ARTS

UNIVERSITY PHYSICAL EDUCATION

TEACHER PREPARATION CURRICULUM FOR WOMEN

FRESHMAN YEAR

	<i>First Semester Credits</i>	<i>Second Semester Credits</i>
See Freshman requirements, page 133. (<i>Include Biol. 1-2</i>)		
Basic course in second teaching major, <i>First year</i>		
Suggested Elective:		
P. E. 11, 12		
	<hr/> 16	<hr/> 16

SOPHOMORE YEAR

P. E. 3, 4	1	1
P. E. 13, 14	1	1
Educ. 41, <i>Principles of Educational Psychology</i>	3	
Educ. 42, <i>Educational Psychology of Adolescence</i>		3
P. E. 23, <i>Principles of Physical Education</i>	3	
Second teaching major, <i>Second year</i>	3	3
Zool. 17-18, <i>Human Anatomy and Physiology</i>	3	3
Suggested Elective:		
First teaching minor, or P. E. 24		
	<hr/> 16	<hr/> 16

JUNIOR YEAR

P. E. 5, 6	1	1
P. E. 63, 64, <i>The Theory</i>	3	3
P. E. 66, <i>Administration of Phys. Ed.</i>		3
Educ. 51, <i>Social Backgrounds of American Secondary Education</i> , and Educ. 52, <i>Principles of American Secondary Education</i>	3	3
Educ. (61), <i>Principles and Problems of Teaching in Secondary Schools</i>		4
First teaching minor	3	
Second teaching major	3	
Teaching minor	3	
	<hr/> 16	<hr/> 18

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SENIOR YEAR	First Semester Credits	Second Semester Credits
P. E. 7	1	
*Educ. 45, <i>N. H. State Program of Studies and School Law</i>	2	
P. E. 55, <i>Remedial Gymnastics</i>	3	
P. E. 91, <i>Problems in the Teaching of Physical Education for Women</i>	4	
Problems in teaching (Second teaching major—e.g., Eng.-Ed. 91, etc.)	3	
Second teaching major	3	
Supervised teaching in major or majors—e.g., Ed.-Eng. 94, etc.		6-12
	18	6-12†
Alternate Second Semester:		
P. E. 24, <i>Organized Camping</i>		3
P. E. 36, <i>Recreation Leadership</i>		3
P. E. 92, <i>Directed Teaching of Phys. Ed. for Women</i>		2
Teaching minor, if not taken second semester of Sophomore year		3
		12

*For students planning to teach in the State of New Hampshire.

†The student should take enough credits in student teaching to reach the 128 needed for graduation. He should not, however, take less than 6 credits.

DETAILED DESCRIPTION OF THIS CURRICULUM APPEARS ON PAGE 126.

COLLEGE OF LIBERAL ARTS

UNIVERSITY TEACHER PREPARATION PROGRAM*

(This is not a prescribed Curriculum)

FRESHMAN YEAR	First Semester Credits	Second Semester Credits
See Freshman requirements, page 133		
†Teaching major (<i>First year</i>)	16	16
SOPHOMORE YEAR‡		
Mil. Sci. 3-4	1½	1½
P. E. 3, 4, (<i>For women</i>)	1	1
P. E. 33, 34, (<i>For men</i>)	½	½
Eng. (<i>A year of English</i>) or Humanities 1-2, <i>Humanities</i>	3	3
Psych. 1, <i>Elementary General Psychology</i> , or Educ. 41, <i>Principles of Educational Psychology</i> , and Educ 42, <i>Educational Psychology of Adolescence</i>	3	3
Teaching major, <i>Second year</i>	3	3
First teaching minor, <i>First year</i>	3	3
	16	16
JUNIOR YEAR		
P. E. 5, 6 (<i>For women</i>)	1	1
Educ. 51, <i>Social Backgrounds of American Secondary</i> <i>Education</i> , and Educ. 52, <i>Principles of American</i> <i>Secondary Education</i>	3	3
Educ. 61, (61) <i>Principles and Problems of Teaching in</i> <i>the Secondary School</i>	4 or	4
Teaching major, <i>Third year</i>	3	3
First teaching minor, <i>Second year</i>	3	3
Second teaching minor, <i>First year</i>	3	3
	16	18

*This program may be completed by students majoring in any of the departments of the University offering work, the subject matter of which is offered in the secondary school. Students must, consequently, fulfill major requirements. A satisfactory completion of this program will entitle the student to a certificate indicating the fact.

†See sections covering Department of Education (page 202) for description of teaching major and teaching minor subjects.

‡General Liberal Arts, students satisfactorily completing this program are released from the Sophomore Group requirements of the General Curriculum and are entitled to either the B.A. or B.S. Degree, whichever is conferred for the subject in which the student is majoring.

UNIVERSITY OF NEW HAMPSHIRE

SENIOR YEAR

	<i>First Semester Credits</i>	<i>Second Semester Credits</i>
|| Teaching major, <i>Fourth year</i>	3	
§ First teaching minor, <i>Third year</i>	3	
§ Second teaching minor, <i>Second year</i>	3	
Problems in teaching, <i>Major</i>	3	
Problems in teaching, <i>Minor</i>	3	
Supervised teaching		6-12
Electives to meet semester requirements	3	
	<hr/> 18	<hr/> **6-12

|| Remainder of the total of 24 semester credits required for the satisfactory completion of the program.

§ Remainder of the total of 12 semester credits required in each teaching minor.

**The student should take enough credits in Student Teaching to reach the 128 needed for graduation. He may not, however, take less than six credits.

DETAILED DESCRIPTION OF THIS CURRICULUM APPEARS ON PAGE 128.

COLLEGE OF TECHNOLOGY

LAUREN E. SEELEY, *Dean*

DEPARTMENTS

CHEMISTRY AND CHEMICAL
ENGINEERING
CIVIL ENGINEERING
ELECTRICAL ENGINEERING

MATHEMATICS
MECHANICAL ENGINEERING
PHYSICS

REQUIREMENTS FOR DEGREES

Baccalaureate Degrees.—Each candidate for a degree must complete 144 semester credits including the courses required in one of the Four-Year Curriculums.

Professional Degrees.—Mechanical, Electrical, and Civil Engineering graduates of the University of New Hampshire are eligible to register as candidates for professional degrees in these three branches of Engineering.

These degrees will be granted, after the preparation and submission of acceptable theses, to those having not less than four years' satisfactory professional experience subsequent to the Bachelor's degree, in which the applicants have wholly or in part supervised, directed or designed engineering work; or have been in responsible charge of instruction or research in Engineering. The acceptability of the theses and professional experience is determined by an Examining Committee.

PROCEDURE.—The procedure for candidates for professional Engineering degrees is as follows:

(1) Prepare an outline for a thesis after consultation with the Head of the Department concerned. This consultation may be by letter.

(2) When the thesis subject is accepted by the Head of the Department in which the degree is to be taken, the candidate will be registered in the Recorder's Office. This registration must be completed by October 1 of the academic year in which the degree is to be conferred.

(3) The first draft of the thesis must be submitted to the professor in charge not later than March 1, and the completed thesis in its final form by May 1.

UNIVERSITY OF NEW HAMPSHIRE

(4) Pass an oral examination at the University covering the candidate's professional practice and the engineering principles underlying the thesis.

THESIS.—The thesis must be typewritten upon standard paper, 8½ by 11 inches, medium weight, neatly bound in black cloth, and gilt-lettered on the first cover with title, name of author, degree sought, and year of graduation. The title page should bear the following statement:

"A thesis submitted to the University of New Hampshire in partial fulfillment of the requirements for the professional degree of mechanical engineer (electrical engineer, civil engineer)."

Whenever a thesis is printed in any periodical, it must be designated as having been accepted as a Professional Engineering Thesis by the University of New Hampshire.

Two bound copies must be filed before Commencement Day, one with the Librarian and one with the Head of the Department in which the major work is done.

CURRICULUMS

The College of Technology offers the following Four-Year Curriculums:

BUILDING CONSTRUCTION CURRICULUM.—This Curriculum is designed to give the student basic training and instruction in engineering and general building construction practice; to acquaint him with and to train him in the problems connected with the construction of light buildings and houses; to develop in the student an understanding of and appreciation for the relationships of the client, architect, engineer, builder, manufacturer and public agencies in planning, designing, financing, and erecting public and private buildings.

CHEMISTRY AND CHEMICAL ENGINEERING CURRICULUMS.—These Curriculums are intended to prepare the student for the career of a professional chemist or chemical engineer and to give a good foundation for further study in graduate schools leading to original and independent research.

Instruction is imparted by lectures, recitations, and carefully supervised laboratory work. The laboratory study is largely individual, and the work of each student is conducted with reference not only to the particular subject he may have in view, but also to the acquirement of a broad knowledge of chemical science. The student is given a training in either German or French to enable him to read with ease the chemical literature, and a grounding in Mathematics and Physics necessary for Advanced Theoretical Chemistry or Chemical

COLLEGE OF TECHNOLOGY

Engineering. In the Chemistry Option further courses in pure science and an independent research project are offered, whereas the Option in Chemical Engineering offers a limited amount of special work in Mechanics, Electrical Engineering and Thermodynamics, and thorough courses in undergraduate chemical engineering subjects. The student in both Options is encouraged to develop the power of solving chemical problems by independent thought through the aid of the reference library and chemical periodicals.

CIVIL ENGINEERING CURRICULUM.—This Curriculum is designed to give the student theoretical and practical instruction in the principles upon which the practice of Civil Engineering is based, and to allow him the opportunity to apply these principles to problems of professional practice in the classroom, in the design room, and in the field.

Civil Engineering, the oldest of the engineering professions, covers a broad field of activity, including Topographical, Structural, Transportation, Hydraulic and Sanitary Engineering. This Curriculum places about equal emphasis upon each of these various branches and allows the student some opportunity to develop his special interests through the thesis requirement.

ELECTRICAL ENGINEERING CURRICULUM.—The Electrical Engineering Curriculum is intended to meet the demands of young men fitting themselves for professional Engineering in connection with the various applications of electricity.

Courses are presented by lectures, recitations, and laboratory practice in such a manner as to make the material of immediate service to the graduate, as well as prepare him to understand the constantly increasing number of new developments in this field.

MECHANICAL ENGINEERING CURRICULUM.—The Mechanical Engineering Curriculum is intended to prepare young men for positions in the field of the mechanical industries. The courses in the Curriculum include Mathematics, Physics and Chemistry, Drawing, Shop Work, Machine Design, Electrical Engineering, Power Engineering, and also courses in Economics and English. Throughout the Curriculum the theoretical work is supplemented by practice in mechanical operations and scientific research, by training in the use of tools for working metals, and by experimental tests and demonstrations in the mechanical, electrical, chemical, and physical laboratories.

PHYSICS CURRICULUM.—The Technology Curriculum in Physics is similar to Physics Curriculums offered in other institutions endeavoring to emphasize the adaptations of Physics to industry. The prescribed work of the Freshman year follows the work given students in both Electrical and Mechanical Engineering.

The position of physicists in industry will be of more importance

UNIVERSITY OF NEW HAMPSHIRE

in the future. The training of physicists for positions in industry is made more valuable when the student physicist takes much of his college work in classes with other Engineering students.

ALUMNI REPRESENTATION.—An Advisory Committee of Alumni of the College of Technology, composed of men in direct contact with industry and practical professional affairs, serves to keep the Faculty in touch with developments in the several fields which attract our graduates. Members of this committee also serve as consultants when important changes in curriculums, Faculty personnel, and policies of administration are considered. The members are:

Henry H. Calderwood, B.S. in E.E., '01, 20 Prospect Street, Saugus, Mass.

John T. Croghan, B.S. in M.E., '08, 574 Chestnut Street, Waban, Mass.

Robert A. Neal, B.S. in E.E., '10, D.Sc. '44, 316 Burlington Road, Wilksburg, Pa.

Lester A. Pratt, Ph.D., '09, 7 Everett Avenue, Winchester, Mass.

COLLEGE OF TECHNOLOGY

BUILDING CONSTRUCTION

FRESHMAN YEAR

	First Semester Credits	Second Semester Credits
P. E. 31-32	$\frac{1}{2}$	$\frac{1}{2}$
Mil. Sci. 1-2	$1\frac{1}{2}$	$1\frac{1}{2}$
Chem. 3-4 <i>General Chemistry</i>	4	4
C. E. 2 <i>Surveying</i>		2
Eng. 1-2 <i>Freshman English</i>	3	3
Math. 5-6, <i>First Year Mathematics</i>	4	4
M. E. 1-2 <i>Engineering Drawing</i>	2	2
M. E. S1 <i>Elementary Shop Practice</i>	2	
	<hr/> 17	<hr/> 17

SOPHOMORE YEAR

P. E. 33-34	$\frac{1}{2}$	$\frac{1}{2}$
Mil. Sci. 3-4	$1\frac{1}{2}$	$1\frac{1}{2}$
B-CE 11, 12 <i>Domestic Architecture</i>	2	2
C. E. 11 <i>Surveying</i>	3	
Econ. 1-2 <i>Principles of Economics</i>	3	3
Geol. 7 <i>General Geology</i>		2
Math. 7-8 <i>Calculus</i>	3	3
Phys. 7-8 <i>General Physics</i>	4	3
Phys. 9-10 <i>Physics Laboratory</i>	2	2
	<hr/> 19	<hr/> 17

JUNIOR YEAR

B. Ad. 1-2 <i>Elementary Accounting</i>	4	4
B-CE 21-22 <i>Building Construction</i>	3	3
C. E. 15 <i>Engineering Materials</i>	3	
C. E. 27, 28 <i>Theory of Structures</i>	4	4
E. E. (33) <i>Fundamentals of Electricity</i>		4
M. E. 9-10 <i>Mechanics</i>	3	4
	<hr/> 17	<hr/> 19

SENIOR YEAR

B-CE 31-32 <i>Professional Practices</i>	3	3
C. E. 31 <i>Community Planning</i>	3	
C. E. 62, <i>Soil Mechanics and Foundations</i>		3
C. E. 65 <i>Structural Design</i>	4	
C. E. 66 <i>Reinforced Concrete Structures</i>		4
Econ. 24 <i>Marketing</i>		3
M. E. 21 <i>Heat Power Engineering</i>	3	
M. E. 39 <i>Heating and Air Conditioning</i>	2	
Approved elective	3	5
	<hr/> 18	<hr/> 18

UNIVERSITY OF NEW HAMPSHIRE

TECHNOLOGY CURRICULUM IN CHEMISTRY AND CHEMICAL ENGINEERING

FRESHMAN YEAR	First Semester Credits	Second Semester Credits
P. E. 31, 32	1½	1½
Mil. Sci. 1-2	1½	1½
Chem. 3-6 <i>General; Inorganic</i>	4	6
Eng. 1-2 <i>Freshman English</i>	3	3
M. E. 1 <i>Engineering Drawing</i>	2	
Math. 5-6 <i>First Year Mathematics</i>	4	4
Ger. 1-2 <i>Elements of German Grammar</i>	3	3
Geo. 7 <i>General Geology</i>		2
	<hr/> 18	<hr/> 20

SOPHOMORE YEAR		
P. E. 33, 34	½	½
Mil. Sci. 11-12	1½	1½
Chem. 21 <i>Semi-Micro Qualitative Analysis</i>	4	
Chem. 22 <i>Quantitative Analysis</i>		5
Ger. 5-6 <i>German or approved elective</i>	3	3
Math. 7-8 <i>Calculus</i>	3	3
Phys. 7-8 <i>General Physics</i>	4	3
Phys. 9-10 <i>Physics Laboratory</i>	2	2
	<hr/> 18	<hr/> 18

JUNIOR YEAR		
CHEMISTRY OPTION		
Chem. 31 <i>Stoichiometry and Tech. Quantitative Analysis</i>	5	
Chem. 47-48 <i>Organic</i>	5	5
Chem. 62 <i>Advanced Quantitative Analysis</i>		5
Chem. 83-84 <i>Physical Chemistry</i>	5	5
Govt. 1, 4 or elective	3	3
	<hr/> 18	<hr/> 18

CHEMICAL ENGINEERING OPTION		
Chem. 31 <i>Stoichiometry and Tech. Quantitative Analysis</i>	5	
Chem. 47-48 <i>Organic Chemistry</i>	5	5
Chem. 71-72 <i>Unit Processes</i>	2	2
Chem. 74 <i>Unit Operations</i>		3
Chem. 83-84 <i>Physical Chemistry</i>	5	6
M. E. 9, 10 <i>Mechanics, or approved elective</i>	3	3
	<hr/> 20	<hr/> 18

COLLEGE OF TECHNOLOGY

SENIOR YEAR

CHEMISTRY OPTION

	<i>First Semester Credits</i>	<i>Second Semester Credits</i>
Chem. 55, 56 <i>Organic Chemistry</i>	3	3
Chem. 71-72 <i>Unit Processes</i>	2	2
Chem. 85-86 <i>Physical Chemistry</i>	3	3
Chem. 87-88 <i>Chemical Literature and Seminar</i>	1	1
Chem. 89-90 <i>Thesis</i>	5	5
Elective (<i>Non-Physical Science</i>)	3	3
	<hr/> 17	<hr/> 17

CHEMICAL ENGINEERING OPTION

Chem. 75 <i>Unit Operations</i>	3	
Chem. 76 <i>Chemical Engineering Economics</i>		3
Chem. 77 <i>Unit Operations Laboratory</i>	3	
Chem. 78 <i>Chemical Plant Design</i>		3
Chem. 79 <i>Chemical Engineering Thermodynamics</i>	3	
Chem. 80 <i>Chemical Engineering Project</i>		5
Chem. 87-88 <i>Chemical Literature and Seminar</i>	1	1
E.E. 33 <i>Fundamentals of Electricity</i>	4	
Govt. 1, 4, or elective	3	3
	<hr/> 17	<hr/> 15

UNIVERSITY OF NEW HAMPSHIRE

CIVIL ENGINEERING

FRESHMAN YEAR	<i>First Semester Credits</i>	<i>Second Semester Credits</i>
P. E. 31, 32	$\frac{1}{2}$	$\frac{1}{2}$
Mil. Sci. 1-2	$1\frac{1}{2}$	$1\frac{1}{2}$
Chem. 3-4 <i>General Chemistry</i>	4	4
C. E. 2 <i>Surveying</i>		2
Eng. 1-2 <i>Freshman English</i>	3	3
Math. 5-6 <i>First Year Mathematics</i>	4	4
M. E. 1-2 <i>Engineering Drawing</i>	2	2
M. E. S1 <i>Elementary Shop Practice</i>	2	
	<hr/> 17	<hr/> 17

SOPHOMORE YEAR		
P. E. 33, 34	$\frac{1}{2}$	$\frac{1}{2}$
Mil. Sci. 3-4	$1\frac{1}{2}$	$1\frac{1}{2}$
C. E. 3-4 <i>Surveying</i>	6	3
C. E. 6 <i>Route Surveying</i>		3
Math. 7-8 <i>Calculus</i>	3	3
Phys. 7-8 <i>General Physics</i>	4	3
Phys. 9-10 <i>Physics Laboratory</i>	2	2
	<hr/> 17	<hr/> 16

JUNIOR YEAR		
C. E. 15 <i>Engineering Materials</i>	3	
C. E. 52 <i>Hydraulics</i>		5
C. E. 27-28 <i>Theory of Structures</i>	4	4
C. E. 41, 42 <i>A. S. C. E. Required</i>		
E. E. (33) <i>Fundamentals of Electricity</i>		4
Geol. 7 <i>General Geology</i>	2	
M. E. 9-10 <i>Mechanics</i>	3	4
M. E. 21 <i>Heat Power Engineering</i>	3	
Approved elective	3	3
	<hr/> 18	<hr/> 20

SENIOR YEAR		
C. E. 38 <i>Thesis</i>		3
C. E. 43, 44 <i>A. S. C. E. Required</i>		
C. E. 61 <i>Highway Engineering and Transportation</i>	4	
C. E. 62 <i>Soil Mechanics and Foundations</i>		3
C. E. 63-64 <i>Hydraulic and Sanitary Engineering</i>	4	4
C. E. 65 <i>Structural Design</i>	4	
C. E. 66 <i>Reinforced Concrete Structures</i>		4
Eng. 23, <i>Writing of Technical Reports</i>		2
Approved elective	6	3
	<hr/> 18	<hr/> 19

COLLEGE OF TECHNOLOGY

ELECTRICAL AND MECHANICAL ENGINEERING

FRESHMAN YEAR	First Semester Credits	Second Semester Credits
P. E. 31, 32	$\frac{1}{2}$	$\frac{1}{2}$
Mil. Sci. 1-2	$1\frac{1}{2}$	$1\frac{1}{2}$
Chem. 3-4 <i>General Chemistry</i>	4	4
Eng. 1-2 <i>Freshmen English</i>	3	3
Math. 5-6 <i>First Year Mathematics</i>	4	4
M. E. 1-2 <i>Engineering Drawing</i>	2	2
M. E. S1, S2 <i>Elementary Shop Practice</i>	2	2
	<hr/> 17	<hr/> 17

Note: The program for the Freshman year in the curriculum in Electrical Engineering and Mechanical Engineering are the same.

The programs for the Sophomore, Junior, and Senior years in the Electrical Engineering Curriculum are given on page 162. The programs for the Sophomore, Junior, and Senior years in the Mechanical Engineering Curriculum are given on page 163.

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ELECTRICAL ENGINEERING

SOPHOMORE YEAR

	<i>First Semester Credits</i>	<i>Second Semester Credits</i>
P. E. 33, 34	$\frac{1}{2}$	$\frac{1}{2}$
Mil. Sci. 3-4	$1\frac{1}{2}$	$1\frac{1}{2}$
C. E. 9 <i>Surveying</i>	2	
E. E. 1-2 <i>Electrical Engineering</i>	3	4
Math. 7-8 <i>Calculus</i>	3	3
M. E. 3 <i>Machine Drawing</i>	2	
M. E. 4 <i>Kinematics</i>		3
Phys. 7-8 <i>General Physics</i>	4	3
Phys. 9-10 <i>General Physics Laboratory</i>	2	2
	<hr/> 18	<hr/> 17

JUNIOR YEAR

Math. 51, 52, 54 <i>Differential Equations and Vector Analysis or Approved elective</i>	3	3
E. E. 13 <i>Electrical Circuits</i>	2	
E. E. 14 <i>Electronic Tubes</i>		3
E. E. 15, 16 <i>A. I. E. E. Required</i>		
E. E. 23-24 <i>Electrical Laboratory</i>	2	2
E. E. 53-54 <i>Electrical Engineering</i>	3	3
M. E. 9-10 <i>Mechanics</i>	3	4
M. E. 25-26 <i>Heat Power Engineering</i>	3	4
M. E. 27 <i>Mechanical Laboratory</i>	2	
	<hr/> 18	<hr/> 19

SENIOR YEAR

C. E. 23 <i>Fluid Mechanics</i>	3	
*E. E. 7, 58 <i>Electronics and Communications</i>	3	4
E. E. 12 <i>Illumination</i>		2
E. E. 17, 18 <i>A. I. E. E. Required</i>		
*E. E. 19, 20 <i>Thesis</i>	3	3
E. E. 25 <i>Electrical Laboratory</i>	4	
E. E. 55 <i>Electrical Engineering</i>	3	
*E. E. 60 <i>Advanced Circuit Theory</i>		4
*E. E. 76 <i>Electrical Laboratory</i>		4
*E. E. 78 <i>Advanced Electronics Laboratory</i>		4
Eng. (41) <i>Expository Writing</i>		2
M. E. 65 <i>Engineering Economy</i>	3	
M. E. 66 <i>Industrial Management</i>		3
Phys. 64 <i>Electrical Measurements</i>		3
Approved non-technical elective optional		3
	<hr/> 18	<hr/> 18

*E. E. 58, 19, 20, 60, 76, 78 are elective courses. Seniors are expected to enroll in a minimum of 12 credits chosen from the required and elective courses of the second semester, not including the non-technical elective.

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MECHANICAL ENGINEERING

SOPHOMORE YEAR

	First Semester Credits	Second Semester Credits
P. E. 33, 34	$\frac{1}{2}$	$\frac{1}{2}$
Mil. Sci. 3-4	$1\frac{1}{2}$	$1\frac{1}{2}$
C. E. (9) <i>Surveying</i>		2
Math. 7-8 <i>Calculus</i>	3	3
M. E. 3, <i>Machine Drawing</i>	2	
M. E. 4, <i>Kinematics</i>		3
M. E. 5-6 <i>Mechanical Laboratory</i>	1	1
M. E. S17 <i>Machine Shop</i>	2	
Phys. 7-8 <i>General Physics</i>	4	3
Phys. 9-10 <i>General Physics Laboratory</i>	2	2
	<hr/> 16	<hr/> 16

JUNIOR YEAR

Approved elective	3	3
C. E. 23 <i>Fluid Mechanics</i>		3
E. E. 37-38 <i>Electrical Machinery</i>	4	4
M. E. 7-8 <i>Mechanics</i>	4	4
M. E. 13 <i>Elementary Metallurgy</i>	2	
M. E. 23, 24 <i>Thermodynamics</i>	3	3
M. E. 29, 30 <i>Mechanical Laboratory</i>	2	1
M. E. 59, 60 <i>A. S. M. E.</i>	$\frac{1}{2}$	$\frac{1}{2}$
	<hr/> $18\frac{1}{2}$	<hr/> $18\frac{1}{2}$

SENIOR YEAR

Approved elective	3	3
Eng. (41) <i>Expository Writing</i>		2
M. E. 15, 16 <i>Machine Design</i>	3	3
M. E. 17 <i>Heat Treatment Laboratory</i>	1	
M. E. 39 <i>Heating and Ventilating</i>	2	
M. E. 49 <i>Thesis</i>	2	
M. E. 52 <i>Mechanical Laboratory</i>		2
M. E. 53, 54 <i>Power Plants</i>	2	3
M. E. 55-56 or 37, 38 <i>Internal Combustion Engines or Aeronautics</i>	3	3
M. E. 65, <i>Engineering Economy</i>	3	
M. E. 66 <i>Industrial Management</i>		3
M. E. 61, 62 <i>A. S. M. E.</i>	$\frac{1}{2}$	$\frac{1}{2}$
	<hr/> $19\frac{1}{2}$	<hr/> $19\frac{1}{2}$

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TECHNOLOGY PHYSICS

FRESHMAN YEAR	First Semester Credits	Second Semester Credits
P. E. 31, 32	$\frac{1}{2}$	$\frac{1}{2}$
Mil. Sci. 1-2	$1\frac{1}{2}$	$1\frac{1}{2}$
Chem. 3, 4 <i>General Chemistry</i>	4	4
Eng. 1-2 <i>Freshman English</i>	3	3
Math. 5, 6 <i>First Year Mathematics</i>	4	4
M. E. 1, 2 <i>Engineering Drawing</i>	2	2
M. E. S1, S2, S3 <i>Elementary Shop Practice</i>	2	2
	<hr/> 17	<hr/> 17
SOPHOMORE YEAR		
P. E. 33, 34	$\frac{1}{2}$	$\frac{1}{2}$
Mil. Sci. 3-4	$1\frac{1}{2}$	$1\frac{1}{2}$
Chem. 25, 26 <i>Intro. Quan. and Qual. Analysis</i>	3	3
Ger. 1-2 or 5-6 <i>German</i>	3	3
Math. 7-8 <i>Calculus</i>	3	3
Phys. 7, 8 <i>General Physics</i>	4	4
Phys. 9, 10 <i>General Physics Laboratory</i>	2	2
	<hr/> 18	<hr/> 18
JUNIOR YEAR		
Chem. 83, 84 <i>Elementary Physical Chemistry</i>	5	5
Math. 51, 52 <i>Advanced Calculus, Diff'l Eq'ns.</i>	3	2
Math. 54 <i>Vector Analysis</i>		2
M. E. 23, 24 <i>Thermodynamics</i>	3	3
Phys. 61, 64 <i>Electrical Theory and Measurements</i>	3	3
Phys. 65, 66 <i>Molecular Physics</i>	3	3
Phys. 71, 72 <i>Seminar</i>	1	1
	<hr/> 18	<hr/> 19
SENIOR YEAR		
Approved electives	6	6
Phys. 55, 56 <i>Experimental Physics</i>	4	4
Phys. 57, 58 <i>Intro. to Theoretical Physics</i>	3	3
Phys. 71, 72 <i>Seminar</i>	1	1
Phys. 73, 74 <i>Thesis</i>	4	4
	<hr/> 18	<hr/> 18

GRADUATE SCHOOL

HERMON L. SLOBIN, *Dean*

OBJECTIVES

The Graduate School is designed to meet the needs of superior students for a more advanced training than may be obtained in an undergraduate curriculum. Graduate work is offered by competent members of the University Departments of instruction and research. Administrative functions and supervision of advanced students are delegated to the Dean of the Graduate School and the Committee on Graduate Study.

The Graduate work of students in education is designed to supplement their undergraduate studies in such manner as to prepare them most effectively for the professions of elementary and secondary school teaching, and of public school administration and supervision.

Graduate Students are defined as those who meet the requirements for admission to the Graduate School (see Rules and Regulations under Admission) and are registered for *more than half their program for graduate credit*.

ADMISSION

Admission to the Graduate School may be granted to graduates of all colleges and universities of approved standing provided their undergraduate records are satisfactory. Before entering upon graduate work in any division the applicant must present evidence to the effect that he has had the necessary prerequisite training that will enable him to pursue with profit the courses desired. A candidate for admission who intended to work for a Master's degree must have had an undergraduate average of not less than $2\frac{1}{2}$ honor points or the equivalent, throughout his entire program of study. This requirement may be waived upon petition to the Executive Council in the case of a mature college graduate who gives evidence of adequate professional experience or advanced study since graduation from an undergraduate program. Admission to the Graduate School does not imply admission to candidacy for the degree. A candidate for admission who does not intend to be a candidate for a degree may enroll in the Graduate School for any courses for which he has had sufficient preparation. No Graduate Student is admitted to candidacy for a degree until he has been in residence a sufficient time to enable his instructors to judge his ability to carry on graduate work. Generally,

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this period of time shall be not less than one semester or two summer sessions. Admission to candidacy for a degree will be determined by the Executive Council.

REGISTRATION

A student desiring to register for Graduate study must submit to the Dean of the Graduate School the official application for admission to Graduate study. Blanks for this purpose may be obtained from the Dean's office. A student's program of courses must be approved by his Adviser, the Chairman of a Division, and the Dean.

TUITION*

The tuition fee is \$160 a year for residents of New Hampshire and \$360 a year for non-residents.

Any student registering for 8 credits or more shall pay the full semester tuition. Any student registering for less than 8 credits shall pay \$6.00 per credit hour, if a resident; and \$13.00, if a non-resident. A Graduate Assistant registering for less than 9 credits shall pay \$3.00 per credit hour, and if registered for more than 9 credits; shall pay \$80 per year.

DEGREES

Requirements.—The Graduate School will grant degrees as follows: Master of Arts, Master of Science, and Master of Education.

Credits.—For the degree in arts and in science, 30 semester credits must be earned. Of these, at least 18 must be taken in courses offered by the major department, and any major department may prescribe for its own students the subjects in which the remaining credits are to be earned. *For the degree of Master of Education see departmental statement.*

Residence.—A minimum of one full academic year, or five summer sessions of six weeks each will be required of all candidates for the Master's Degree. If the work is taken in the regular academic year no exception to this residence requirement will be permitted.

If the work is taken in summer sessions in this University, the following variations are permissible: The time occupied in earning 6 credits elsewhere in an approved graduate school may be accepted in lieu of one summer session of residence. These regulations make it possible to complete the residence requirements in three summer sessions.

*For tuition rates in Summer School see Summer Session Issue of the University Bulletin Series.

GRADUATE SCHOOL

If the candidate offers acceptable credits earned at this University in Saturday courses, or in extra-mural courses, two semester courses of such work will be counted as the equivalent of one summer session in residence.

Examinations.—A final oral or written examination may be demanded by any department of its candidates for the Master's Degree, but the details of the departments requirements in this matter must be approved by the Executive Council.

Grades.—The passing grade in the Graduate School is C. Candidates for a degree must earn a grade of B, or better, in three-fourths of the work for which a letter grade is given.

Graduate Credits.—Graduate credits may be earned only in courses numbered 51 to 199, but they will not be given in any courses so numbered which admit Freshmen or Sophomores. For any Master's Degree, except that of Ed.M., the candidates must earn not less than 12 semester credits in the courses primarily for Graduate Students, numbered 101-199, or thesis, and not more than 10 semester credits in courses outside of those offered by his "major" division.

Graduate Credits for Senior Students.—Senior students must register in the Graduate School for any work for which they may subsequently apply for graduate credit.

Transfer credits.—A candidate for any Master's Degree may present for credit a maximum of 6 credits earned elsewhere at an approved graduate school.

Thesis.—A thesis will be required of all candidates for the Master's Degree in Arts and in Science and may be submitted by the candidates for the Master's Degree in Education. The number of *thesis credits* may vary from 6 to 10, subject to the approval of the major department. (For *thesis regulations* see Bulletin of the Graduate School.)

Special Requirements.—The student must meet the special requirements of his major department, and his program must be approved by his adviser who will be designated by the Dean. (For the special Departmental Requirements see Bulletin of the Graduate School.)

HONORARY FELLOWSHIPS FOR VISITING SCHOLARS

Properly qualified scholars who may desire temporarily the privileges of the library and research facilities of the University and who are not candidates for a degree may, upon recommendation of the Dean of the Graduate School and the approval of the President of the University, be appointed Honorary Fellows without stipend. Hon-

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orary Fellows shall not be required to pay any charges except, possibly, the cost of unusually expensive supplies or equipment.

ASSISTANTSHIPS AND SCHOLARSHIPS

Graduate Students may be employed as Graduate Assistants for (a) Research, (b) Teaching, and (c) Service, at \$50, \$70, and \$90 per month, depending upon the student's program of hours of study and hours of service. Inquiries regarding Assistantships should be addressed to the Head of the Department concerned.

A limited number of superior students who are legal residents of New Hampshire are awarded exemption from tuition. These awards are subject to the maintenance of a high scholarship record in the Graduate School and may be revoked at the end of any semester if the student does not merit such exemption for the subsequent semester.

SPECIAL REGULATIONS FOR VETERANS

Men and women released from the Armed Forces will be permitted to transfer not more than 12 of the 30 credits required for a degree under the following conditions:

1. The credits must be transferred from approved graduate schools or other approved official agencies.
2. In each case transferred credits will be accepted and evaluated by a committee consisting of the Dean of the Graduate School, the Dean of Student Administration, and the Chairman of the Department concerned.
3. The remaining credits must be earned in residence.

INFORMATION

For detailed information concerning admission, requirements for degrees, courses open to graduate students, and other matters not covered above, interested persons are invited to write to the Dean of the Graduate School.

DESCRIPTION OF COURSES

(Departments Alphabetically Arranged)

The title of the course is given in small capital letters. The numeral designates the particular course. Odd numerals indicate courses normally offered in the first semester; even numerals indicate courses normally offered in the second semester. Numerals enclosed in parentheses indicate that a course is repeated in the semester following. Thus course 1 (1) is offered in the first semester and is repeated in the second semester.

Courses numbered 1-50 cannot be counted for graduate credit. Courses numbered 51-100 are for undergraduate and graduate students.

Following the title is the course description and the name of the instructor.

The next paragraph gives the following information in the order indicated: (1) prerequisites, if any; (2) the number of hours of recitations or laboratory periods required each week; (3) the number of semester credits the course will count in the total required for graduation. Lectures and recitations are fifty-three minutes in length. Laboratory periods are usually two and one-half hours in length.

Abbreviations have been employed to indicate the number of hours of work required of students in lecture, recitation, and laboratory, and the number of credits given for satisfactory completion of each course. These abbreviations should be interpreted as follows:

Cr.	Semester hour credit
Lab.	Laboratory
Lec.	Lecture
Prereq.	Prerequisite
Rec.	Recitation

All courses (unless otherwise marked) are open to students who have passed the prerequisites.

An elective course will be given only when there is a minimum of five students registered therefor.

If the numerals designating a course running through both semesters are connected by a hyphen, the first semester, or its equivalent, is a prerequisite for the second semester. If the numerals are separated by a comma, properly qualified students may take the second semester without having had the first.

Students must register for the number of credits or within the range of credits shown in the Catalogue description of a course.

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ACCOUNTING

(See ECONOMICS, page 197.)

AGRICULTURAL AND BIOLOGICAL CHEMISTRY

THOMAS G. PHILLIPS, *Professor*; STANLEY R. SHIMER, *Associate Professor*; HELEN J. PURINTON, *Assistant Professor*; ARTHUR E. TEERI, *Assistant Professor*.

1. ORGANIC AND BIOLOGICAL CHEMISTRY. An introduction to Organic Chemistry and a brief survey of Biological Chemistry. Mr. Shimer, Mr. Phillips. Prereq.: Chem. 2. 3 lec.; 2 lab.; 5 cr.

2. PLANT CHEMISTRY. The chemistry of plant growth, soils, and fertilizers. Mr. Phillips. Prereq.: Agr. Chem. 1 or its equivalent. 2 lec.; 1 lab.; 3 cr.

4. ANIMAL NUTRITION. The chemistry of animal nutrition. Mr. Shimer. Prereq.: Agr. Chem. 1 or its equivalent. 2 lec.; 1 lab.; 3 cr.

5. ORGANIC AND BIOLOGICAL CHEMISTRY. An introduction to Organic Chemistry and a brief survey of Biological Chemistry. Mr. Shimer, Miss Purinton. Prereq.: Chem. 2. 3 lec.; 2 lab.; 5 cr.

6. CHEMISTRY OF FOOD AND NUTRITION. The chemistry of food materials and of digestion, absorption, metabolism, and excretion. Mr. Shimer, Miss Purinton. Prereq.: Agr. Chem. 5 or its equivalent. 2 lec.; 1 lab.; 3 cr.

51-52. PHYSIOLOGICAL CHEMISTRY. The chemistry of fats, carbohydrates, and proteins; colloids, enzyme action, digestion, metabolism, and excretion. The qualitative and quantitative examination of blood and urine. Mr. Shimer, Mr. Teeri. Prereq.: Satisfactory preparation in Organic Chemistry and Quantitative Analysis. 3 lec.; 2 lab.; 5 cr.

53-54. AGRICULTURAL ANALYSIS. A study of the methods of analysis of soils, fertilizers, feeding stuffs, and other products important in Agriculture. Mr. Phillips, Mr. Shimer. Prereq.: Satisfactory preparation in Organic Chemistry and Quantitative Analysis. 1 lec.; 3 lab.; 4 cr. (Given in alternate years; offered in 1946-1947.)

COURSES PRIMARILY FOR GRADUATE STUDENTS

101, 102. ADVANCED BIOCHEMISTRY. The preparation, composition and analysis of carbohydrates, fats, and proteins. Discussions and laboratory. Mr. Phillips and Mr. Shimer. Prereq.: Satisfactory preparation in Analytical, Organic, and Biological Chemistry. 4 cr.

103, 104. SPECIAL PROBLEMS. Conferences and library and laboratory work on special phases of chemistry in its relation to agriculture and biology. Mr. Phillips, Mr. Shimer, Miss Purinton, Mr. Teeri. Prereq.: Satisfactory preparation in Analytical, Organic, and Biological Chemistry. Subject matter and credits to be arranged.

AGRICULTURAL ECONOMICS

AERONAUTICS

(See MECHANICAL ENGINEERING, page 249.)

AGRICULTURAL ECONOMICS

HARRY C. WOODWORTH, *Professor*; HAROLD C. GRINNELL, *Associate Professor*.

7. FARM ACCOUNTING. The principles of double-entry accounting applicable to the farm business; the interpretation and use of financial statements. Mr. Grinnell. (Formerly given as Agr. Econ. 13.) Elective for Juniors and Seniors in Agriculture. 1 lec.; 1 lab.; 3 cr.

11. ECONOMICS OF THE AGRICULTURAL INDUSTRY. Production and distribution problems of the agricultural industry, the nature of farming costs, agricultural prices, farm credit, land utilization, Federal and State action programs, and agricultural policy. Mr. Woodworth. Elective for Juniors and Seniors. 3 lec.; 3 cr.

14. FARM MANAGEMENT. Business aspects concerned with the organization and management of a farm as a business unit. Practical problems of reorganization will be carried out on at least two near-by farms. Mr. Grinnell. Elective for Seniors in Agriculture. 2 lec.; 1 lab.; 3 cr.

52. CO-OPERATIVE BUSINESS. Stress is placed on the organizational, legal, and financial problems of farmers' business corporations engaged in buying and selling. Selected problems of general agricultural marketing are integrated with the course content. Mr. Grinnell. (Formerly given as Agr. Econ. 15.) Elective for Juniors and Seniors. 3 lec.; 3 cr.

53. AGRICULTURAL PRICES. Quantity-price relationships, measures of shifts in demand and supply, determination of prices, price stabilization, market discrimination, and time elements in prices. Elective, subject to approval of instructor. 3 lec.; 3 cr. (Not offered in 1946-1947.)

54. AGRICULTURAL POLICY. Public policies involving conservation and agriculture will be studied and appraised. Production and price control, land-use problems, soil conservation, forest regulation, the objectives and effect of various action programs. Mr. Woodworth. Elective, subject to approval of instructor. 3 lec.; 3 cr.

55, 56. SPECIAL PROBLEMS IN AGRICULTURAL ECONOMICS. Special assignments in readings and problems to satisfy students' needs. Mr. Woodworth, Mr. Grinnell. 1 to 3 cr.

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COURSES PRIMARILY FOR GRADUATE STUDENTS

101-102. ADVANCED FARM MANAGEMENT. Principles and problems of farm management as applied to the organization and operation of individual farms. Mr. Grinnell. 3 cr.

103. ADVANCED AGRICULTURAL PRICES. The history of agricultural prices and the major factors determining prices. Methods of price analysis. Assigned readings and conferences. 3 cr. (Not offered in 1946-1947.)

106. ADVANCED LAND UTILIZATION AND AGRICULTURAL POLICY. An appraisal of national and local policies and proposed action programs affecting American agriculture. Assigned readings and conferences. Mr. Woodworth. 3 cr.

181-182. READING AND RESEARCH IN AGRICULTURAL ECONOMICS. With the advice and consent of the instructor, a student prepared by training and experience to do independent work may register for a reading and research course. The student will undertake assigned problems and readings under the guidance of the instructor.

AGRICULTURAL ENGINEERING

GEORGE M. FOULKROD, *Associate Professor*; PAUL A. GILMAN,
Instructor.

5, 6. BASIC APPLICATIONS. The principles and methods used in the solution of farm problems. Land measurement, drainage, terracing, water supply, sanitation, and electrification are considered during the first semester, and power, machinery and structures during the second semester. Mr. Foulkrod. 1 lec.; 1 lab.; 2 cr.

17, 18. FARM SHOP. The selection, care and use of tools needed for modern farm operation and maintenance with practice in basic tool operations. The development of skills in handling tools for maintenance and construction work on the farm. Mr. Foulkrod. 2 lab.; 2 cr.

22. FARM POWER APPLICATIONS. The application of power to modern farm practices with emphasis on gasoline engines, tractors, electric motors, wind and water power units. Mr. Foulkrod. 1 lec.; 1 lab.; 2 cr. (Alternate years; offered in 1946-1947.)

23. FARM MACHINERY AND EQUIPMENT. A study of modern farm equipment with emphasis on its adaptability to New England farms. Mr. Foulkrod. 1 lec.; 1 lab.; 2 cr. (Alternate years; not offered in 1946-1947.)

24. FARM STRUCTURES. Lectures, drafting room practice, and field studies of the design, construction, and maintenance of all farm

AGRONOMY

structures. Mr. Foulkrod. 1 lec.; 1 lab.; 2 cr. (Alternate years; not offered in 1946-1947.)

31. HOME BUILDING. The principles involved in selecting a home which is best fitted to the needs, desires, and activities of the whole family group are considered. A study of existing homes and published plans is supplemented by practice in original design, through simple sketch plans. Mr. Foulkrod. (Formerly given as H. Ec. 31.) 2 lec.; 1 lab.; 3 cr.

38. HOUSEHOLD MECHANICS. The application of engineering principles and practices to the problem of making the home more comfortable, convenient, and livable is covered in theory and demonstration. Electrical appliances, water supply, sewerage disposal, gas, telephone, and fuels are considered. The selection, care, and maintenance of cooking, heating, refrigeration, cleaning, and other equipment are studied. Mr. Foulkrod. (Formerly given as H. Ec. 38.) 2 lec.; 1 lab.; 3 cr.

AGRONOMY

FORD S. PRINCE, *Professor*; LEROY J. HIGGINS, *Associate Professor*; PAUL T. BLOOD, *Assistant Professor*; LOUIS T. KARDOS, *Assistant Professor*; PAUL A. GILMAN, *Instructor*.

1. SOILS. The nature and properties of soils; fundamental physical, chemical, and biological processes and characteristics of productive soils. Mr. Higgins. (Formerly given as Agron. 2.) 2 lec.; 1 lab.; 3 cr.

4. FERTILIZERS AND SOIL FERTILITY. The manufacture and use of fertilizers, the production, composition, and care of farm manure and the relationship to crop response and soil fertility. Mr. Prince. 2 lec.; 1 lab.; 3 cr.

10. CROP PRODUCTION. Production of agronomic crops, distribution, choice, growth processes, cropping practices, seed beds, care, improvement, and breeding. Mr. Higgins. (Formerly given as Agron. 13.) 2 lec.; 1 lab.; 3 cr.

17. SEED TESTING. Official method of analysis of agricultural seeds for purity and germination, the identification of seeds, and the technique used in weighing, germinating, counting, and recording. Mrs. Sanborn in charge. (Formerly given as Agron. 16.) Prereq.: Bot. 1 and permission of instructor. Hours arranged; 1 lab.; 1 cr.

18. POTATOES AND CEREAL CROPS. Potatoes and potato production in the Northeast; cereal grains such as corn, oats, and barley. Mr

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Higgins. (Formerly given as Agron. 14.) Prereq.: Agron. 1, 4, and 10 or permission of instructor. 2 lec.; 1 lab.; 3 cr. (Alternate years; not offered in 1946-1947.)

20. FORAGE AND PASTURE CROPS. Forage grasses and legumes, forage production, pasture crops and swards, and pasture management practices. Mr. Higgins. Prereq.: Agron. 1, 4, and 10 or permission of instructor. 2 lec.; 1 lab.; 3 cr. (Alternate years; offered in 1946-1947.)

57. SOIL PHYSICS. The physical constitution and colloidal properties of soils; their measurement and relation to structure, water movement, aeration and temperature in soils. Mr. Kardos. Prereq.: Agron. 1, 4, and Phys. 4. 2 lec.; 1 lab.; 3 cr. (Alternate years; not offered in 1946-1947.)

58. SOIL CLASSIFICATION AND MAPPING. The origin, morphology, classification, and mapping of soils. Relationships of the Great Soil Groups of the world to crop production. Special emphasis is devoted to the soils of New Hampshire. Mr. Kardos. Prereq.: Agron. 1 and other courses at the discretion of the instructor. 2 lec.; 1 lab.; 3 cr. (Alternate years; not offered in 1946-1947.)

59. SOIL CHEMISTRY. A study of the methods of evaluating nutrient levels in soils and of principles underlying the liberation, absorption, and fixation of nutrient elements in soils. Mr. Kardos. Prereq.: Agr. Chem. 1, 2, and Agron. 1, 4. 2 lec.; 1 lab.; 3 cr. (Alternate years; offered in 1946-1947.)

60. SOIL CONSERVATION. The causes and effects of soil erosion. Cropping systems, fertilizer practices and structural devices used in erosion control. Mr. Kardos. Prereq.: Agron. 1, 4, 10. 1 lec.; 2 lab.; 3 cr. (Alternate years; offered in 1946-1947.)

71, 72. AGRONOMY SEMINAR. Library and reference work on special phases of soil and crop problems. Practice in looking up literature and in preparation of reports and abstracts. Mr. Prince and staff. (Formerly given as Agron. 51-54.) Prereq.: Agron. 1, 4, 10. Elective for Seniors. 1 to 3 cr.

COURSES PRIMARILY FOR GRADUATE STUDENTS

101, 102. AGRONOMY. Studies in Comparative Agronomy. The forage crops of the temperate zone. Origin and classification of the varieties grown. Germination, growth, and maturation of crops; modifications induced by climate and management. Mr. Prince. Prereq.: A major in Agronomy or its equivalent. Conferences, laboratory, and field work. Hours to be arranged. 3 cr.

ANIMAL HUSBANDRY

ANIMAL HUSBANDRY

LORING V. TIRRELL, *Professor*; FRED E. ALLEN, *Assistant Professor*.

2. TYPES AND MARKET CLASSES OF LIVESTOCK. Origin, history, development, characteristics, and adaptability of the different types of horses, cattle, sheep, and swine, with practice in judging. Mr. Tirrell. 2 lec.; 1 lab.; 3 cr.

11. LIVESTOCK JUDGING. The principles and practice of judging horses, beef cattle, sheep, and swine. It includes trips to some of the best New England breeding establishments and is required of candidates for judging team. Mr. Tirrell. 1 lab.; 1 cr.

13. FEEDS AND FEEDING. The character, composition, and digestibility of feed stuffs and the principles and methods of feeding different kinds of farm animals. Mr. Tirrell. 3 lec.; 3 cr.

14. ADVANCED LIVESTOCK JUDGING. A continuation of Animal Husbandry 11. It serves as a basis for the selection of a livestock team for competition such as held at the Eastern States Exposition and the International at Chicago. Mr. Tirrell. Prereq.: Animal Husbandry 11. 1 lab.; 1 cr.

15. SYSTEMATIC ANATOMY. The general anatomy and physiology of domestic animals. Dr. Allen. 3 lec.; 3 cr.

16. ANIMAL DISEASES. The prevention, control, and treatment of the bacterial and parasitic diseases of domestic animals. Dr. Allen. 3 lec.; 3 cr.

18. MEAT AND ITS PRODUCTS; LIVESTOCK MARKETS. A study of meat, farm slaughter, curing and identification of cuts; livestock, markets, stockyards, and transportation, with occasional trips to slaughter houses and packing plants. Mr. Tirrell. 1 lec.; 1 lab.; 2 cr.

19. MANAGEMENT OF HORSES AND BEEF CATTLE. Selection, feeding, breeding management, and preparation for the show ring of horses and beef cattle with special reference to New England conditions. Mr. Tirrell. 2 lec.; 1 lab.; 3 cr.

20. SHEEP AND SWINE HUSBANDRY. Selection, breeding, feeding, management, and preparation for the show ring of sheep and swine, with special reference to New England conditions. Mr. Tirrell. 2 lec.; 1 lab.; 3 cr.

51. ANIMAL BREEDING. The principles and practices of breeding farm animals, including cross-breeding, in-breeding, selection, inheritance, breed analysis, reproductive efficiency, fertility and sterility. Mr. Tirrell. 3 lec.; 3 cr.

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52. ANIMAL HUSBANDRY SEMINAR. Library and reference work and preparation of papers on various Animal Husbandry subjects of timely importance. Mr. Tirrell. 1 to 3 cr.

COURSES PRIMARILY FOR GRADUATE STUDENTS

105. PROBLEMS IN ANIMAL BREEDING. Studies in practical breeding problems with beef and dual-purpose cattle, sheep, horses, and hogs. The genetic principles important to successful livestock production will be emphasized. Mr. Tirrell. Prereq.: A major in Animal Husbandry or Dairy Husbandry. 2 lec.; 1 lab.; 3 cr.

106. MEATS, LIVESTOCK MARKETS AND PRODUCTS. The essential factors in meat selection, cutting, curing, and smoking; study and discussion relative to the problems of livestock marketing, and the procedure in the large central markets. Trips are taken to various packing plants. Mr. Tirrell. Prereq.: A major in Animal Husbandry or Dairy Husbandry. 2 lec.; 1 lab.; 3 cr.

THE ARTS

GEORGE R. THOMAS, *Associate Professor*; IRMA G. BOWEN, *Associate Professor*; PAUL L. GRIGAUT, *Associate Professor*; VERA E. MOULTON, *Assistant Professor*; EDWIN SCHEIER, *Instructor*; WESLEY F. BRETT, *Instructor*; WENDOVER NEEFUS, JR., *Instructor*; DORIS F. WILKINS, *Instructor*; CORNELIA SCHOOLCRAFT, *Instructor*; MARION MOODY, *Assistant*.

CRAFT COTTAGE.—Devoted to the pursuit of a variety of handicrafts suitable for avocational or leisure-time hobbies. Classes open to all students; laboratories scheduled at various times throughout the week to meet the differences in individual programs.

STUDENT WORKSHOP.—An experimental arts laboratory located in Hewitt Hall, open to any student in the University, whether or not enrolled in art courses. Equipped with woodworking tools and machinery, a printing-press, silk screen printing equipment, air brush, facilities for block printing, model making, making of decorations, repairing of skis and other sports' equipment, woodcarving, photography, and other hobby interests. Directed by Mr. Brett.

All laboratory courses listed in this section are limited in enrollment. Students should consult the instructor in charge before registering.

In those courses where the students retain finished products, they pay for cost of materials used.

GENERAL COURSES IN THE ARTS

3, 4. HANDICRAFTS. A course offering opportunity to become ac-

THE ARTS

acquainted with elementary work in fifteen or more crafts such as leatherwork, chip carving, weaving, Viennese stenciling, embroidery, and others. Miss Bowen. Elective by permission only. 1-3 lab.; 1-3 cr.

5, 6. HANDICRAFTS. A continuation of Arts 3 or 4 covering other crafts, or more advanced work. Miss Bowen. Elective by permission only. Prereq.: Arts 3 or 4. 1-3 lab.; 1-3 cr.

11, (11). MODELING. Modeling in relief and the round figure. An introduction to ceramic sculpture and to the processes of casting in plaster and papier-mâché. Mr. Scheier. 2 lab.; 2 cr.

15, 16. CERAMICS (Pottery). Design and construction. Studio practice in throwing, casting, modeling, decorating, glazing, and firing of pottery, tiles, and figures. Modeling in ceramic clay and plasticine. Study of casting problems. Mr. Scheier. 2-3 lab.; 2-3 cr.

17, 18. CERAMICS (Pottery). A further study of design and construction, with special emphasis on decoration and the preparation and application of glazes. Mr. Scheier. Prereq.: Arts 15, 16. 2-3 lab.; 2-3 cr.

19, 20. PUPPETRY. Design and construction of hand puppets, marionettes, and shadow puppets. Writing and production of puppet plays and pantomimes. Mr. Scheier. 2 lab.; 2 cr. (Not offered in 1946-1947.)

23. ELEMENTARY DRAWING AND DESIGN. Studio exercises in graphical representations designed to stimulate and develop the student's expression of creative thought. Original ideas will be guided through the process of development by criticism and suggestions only. Mr. Thomas. 2-3 lab.; 2-3 cr.

24. ELEMENTARY DRAWING AND DESIGN. Elementary drawing in various media from casts, still-life, and nature, aiming at the stimulation and development of creative thought through the study of fundamental forms. Lettering, block printing, and color. Mr. Thomas. 2-3 lab.; 2-3 cr.

25, 26. ADVANCED DRAWING AND DESIGN. Advanced studio exercises in various media from casts and from life. Composition, proportion, perspective, and the expression of mass by means of line and simple light and shade. Theories of color, scientific and aesthetic, and their application. Outdoor sketching. Mr. Thomas. 2-3 lab.; 2-3 cr.

29, 30. ADVANCED PAINTING. A general advanced study of special types, depending upon the student's previous training. A variety of studio work under individual supervision and criticism. Mr. Thomas. Elective by permission only. Credits to be arranged.

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31, 32. INTRODUCTION TO THE ARTS. A broad historical survey of man's creative efforts in their relation to contemporary cultural and social movements, presented as a background for interpreting the place of the arts in individual and community life of today. Illustrated lectures with assigned readings. Mr. Thomas. For Sophomores, Juniors, and Seniors. 3 lec.; 3 cr.

33. SURVEY OF EUROPEAN ART. The development of art, especially painting, in Europe from the Renaissance to the present, with particular emphasis on French art of the 19th and 20th centuries. Illustrated lectures, assigned readings, and reports. Mr. Grigaut. For Sophomores, Juniors, and Seniors. 3 lec.; 3 cr.

35, (35). STAGECRAFT. Technical phases of play production, including stage design, construction and painting of scenery, stage lighting, makeup, costuming, mechanical effects, and handling of properties. Offered in conjunction with Play Production (English 47, 48). Mr. Brett. ½-1 cr.

39, (39). ELEMENTARY PHOTOGRAPHY. The theory and technique of photography, covering camera operation, printing, enlarging, and presentation. Special lectures on Optics and Photographic Chemistry by Physics and Chemistry Department staff members. Mr. Neefus. Open to Sophomores, Juniors, and Seniors with permission of the instructor. 1 lec.; 2 lab.; 3 cr. Laboratory fee: \$5.00.

43-44. HISTORIC COSTUME AND DESIGN. Costume changes from the primitive to the present, and something of the historical events that influenced such changes. Adaptation of period costume to modern use. Miss Moulton. First semester: 3 lec. or rec.; 3 cr. Second semester: 2-3 lab.; 2-3 cr.

52. ADVANCED PHOTOGRAPHY. Each student will be assigned a special problem, in which he will outline a project and prepare and present a series of not less than 10 photographs to illustrate a single theme. Prereq.: Completion of Arts 39 with a grade of B or better, and the permission of the instructor. 1 rec.; 2 lab.; 3 cr. Laboratory fee: \$2.50. (Not offered in 1946-1947.)

ART-EDUCATION (ART-ED) 91. PROBLEMS OF TEACHING ART IN ELEMENTARY SCHOOLS. 2 rec.; 1 lab.; 3 cr.

ART-EDUCATION (ART-ED) 92. PROBLEMS OF TEACHING ART IN SECONDARY SCHOOLS. 2 rec.; 1 lab.; 3 cr.

EDUCATION-ART (ED-ART) 94. SUPERVISED TEACHING IN SECONDARY SCHOOL ART. Prereq.: Art-Ed 92. One semester of Supervised Teaching. 6-12 cr.

BIOLOGY

Selection from the following courses offered by several departments within the University may, with consent of the Head of the Department, be counted toward a major program in the Arts:

ELEMENTARY LANDSCAPE GARDENING. See HORTICULTURE 28.

FLORAL ARRANGEMENT. See HORTICULTURE 38.

FORGE SHOP. See MECHANICAL ENGINEERING S13 (S13).

HOME BUILDING AND FURNISHING. See AGRICULTURAL ENGINEERING 31 and HOME ECONOMICS 32.

MECHANICAL DRAWING. See MECHANICAL ENGINEERING (1).

For courses in Music, Dramatic Art, and Dancing, see Departments of Music, English, Physical Education for Women.

A special University committee on Fine Arts promotes on the Campus a series of exhibitions and lectures treating the arts. Visits to near-by museums and points of interest are arranged from time to time, and published lists of these visits are available. The following are a few of the art centers within a convenient radius of Durham: Addison Gallery of American Art, Currier Gallery of Art, Museum of Fine Arts of Bowdoin College, and several excellent museums and galleries in Boston, including the Boston Museum of Fine Arts, the Gardner Museum, and the Fogg Museum at Harvard University.

BACTERIOLOGY

(See page 180.)

BIOLOGY

C. FLOYD JACKSON, *Professor*; LAWRENCE W. SLANETZ, *Associate Professor*; ALBION R. HODGDON, *Associate Professor*; CHARLES B. DOBROVOLNY, *Associate Professor*; GEORGE M. MOORE, *Associate Professor*; EDYTHE T. RICHARDSON, *Assistant Professor*; MARIAN E. MILLS, *Assistant Professor*; STUART DUNN, *Assistant Professor*; M. C. RICHARDS, *Assistant Professor*; PAUL E. SCHAEFER, *Assistant Professor*; CLARA H. BARTLEY, *Assistant Professor*; ELEANOR S. HARRINGTON, *Instructor*; H. GILBERT CRECELIUS, *Instructor*; ERMA L. ANDREWS, *Instructor*; IAN M. MILLER, *Graduate Assistant*; WILLIAM J. JAHODA, *Graduate Assistant*.

Biol. 1-2. MAN AND THE LIVING WORLD. This is a basic course in Biology, designed to give the student fundamental facts about himself and a broad understanding of his relation to the living world, both plant and animal, of which he is a part. 3 lec. or rec.; 1 lab.; 4 cr. *This course cannot be used to satisfy major requirements.*

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BIOLOGY-EDUCATION (BI-ED) 91. PROBLEMS IN THE TEACHING OF HIGH SCHOOL BIOLOGY. Objectives and methods of teaching. The selection and organization of materials; visual aids; setting up aquaria and other projects will be stressed. Mr. Schaefer. Prereq.: See page 205. 2 rec.; 1 lab or field trip; 3 cr.

EDUCATION-BIOLOGY (ED-BI) 93, 94. Supervised Teaching in High School Biology. See page 206.

BACTERIOLOGY

MR. SLANETZ, *In Charge*

1. GENERAL BACTERIOLOGY. Principles of Bacteriology; morphology, physiology, and classification of bacteria and other microorganisms, and their relationships to agriculture, industry, sanitation, and infectious diseases. Mr. Slanetz. Prereq.: Chem. 1-2 or equivalent. 2 lec.; 2 lab.; 4 cr.

2. FOOD AND SANITARY BACTERIOLOGY. Relation of microorganisms to food production; food preservation; food infections and intoxications; standard laboratory methods for the bacteriological examination of foods. Bacteriology and sanitation of water, sewage, air, and eating utensils. Disinfection and disinfectants. Mrs. Bartley. Prereq.: Bact. 1. 2 lec.; 2 lab.; 4 cr.

3. ELEMENTS OF MICROBIOLOGY. Lectures and recitations or laboratory demonstrations on the nature and characteristics of bacteria, viruses, yeast and molds; the relationships of these microorganisms to agriculture, industry, sanitation, and infectious diseases. For students who, as part of their cultural training, desire some knowledge of microbes and their role in everyday life. Mr. Slanetz. 3 lec. or rec.; 3 cr. (Not open to Freshmen.)

4. PUBLIC HEALTH AND SANITATION. A consideration of the causal agents, prevalence, transmission, and control of the communicable diseases. Sanitation of water, sewage, food, and air. Community hygiene and public health administration. Mr. Slanetz. Prereq.: Biol. 1-2, or consent of instructor. 3 lec. or demonstrations; 3 cr.

6. AGRICULTURAL AND SOIL BACTERIOLOGY. Study of important soil bacteria and their role in soil fertility; characteristics of bacteria and viruses causing plant disease. Mr. Crecelius. Prereq.: Bact. 1. 2 lec.; 1 lab.; 3 cr.

8. PATHOGENIC BACTERIOLOGY. A study of the morphological, cultural, biochemical, serological, and pathogenic characteristics of microorganisms causing human and animal diseases. Mr. Slanetz and Mrs. Bartley. Prereq.: Bact. 1. 2 lec.; 2 lab.; 4 cr.

BIOLOGY

53. IMMUNOLOGY AND SEROLOGY. The theories of infection and immunity; production of vaccines, toxins, and antiserums; serological techniques of disease diagnosis and identification of bacteria, including agglutination, precipitating, and complement fixation tests. Mrs. Bartley. Prereq.: Bact. 8. 2 lec.; 2 lab.; 4 cr.

55, 56. PROBLEMS IN BACTERIOLOGY. Special problems, depending upon the training and desire of the student. Elective only upon consultation. Mr. Slanetz and members of the staff. Credits to be arranged.

57, 58. BACTERIOLOGY SEMINAR. Reports and discussions on current literature and recent developments in bacteriology. Mr. Slanetz and members of the staff. Prereq.: Bact. 2 or 8 and consent of instructor. One 2-hour period; 1 cr.

COURSES PRIMARILY FOR GRADUATE STUDENTS

101. PHYSIOLOGY OF BACTERIA. A study of the growth, nutrition, and metabolism of bacteria; influence of physical and chemical environment on growth; bacterial enzymes; protein decomposition and fermentation. Mr. Crecelius. Prereq.: Bact. 2 or 8, or equivalent. 3 lec.; 3 cr.

104. SYSTEMATIC BACTERIOLOGY. A study of the development of a systematic classification of bacteria; modern methods of nomenclature and classification; problems encountered in the classification of bacteria. Mr. Slanetz. Prereq.: Bact. 2 or 8, or equivalent. 2 lec.; 2 cr.

BOTANY

MR. HODGDON, *In Charge*

1. GENERAL BOTANY. The principal plant groups with emphasis on structure, function, and economic importance with stress on agricultural applications. Mr. Hodgdon. Required of Freshmen in Agriculture. 2 lec.; 2 lab.; 4 cr.

2. GENERAL BOTANY. A general survey of the entire plant kingdom with emphasis on development, reproduction, and evolutionary trends. Mr. Hodgdon. Prereq.: Bot. 1 or Bot. 3. 2 lec.; 2 lab.; 4 cr.

3. THE PLANT WORLD. The structure and function of plant parts. The application of basic biological principles to plant life. Mr. Hodgdon. Prereq.: Biol. 1-2. 3 lec.; 1 lab.; 4 cr.

5. PLANT ANATOMY AND CYTOLOGY. The anatomy of seed plants as revealed by free-hand and sliding microtome sections and simple staining. A brief review of cell structure as shown by cytological methods. Mr. Dunn. Prereq.: Bot. 1 or Bot. 3: 2 lab.; 2 cr. (Formerly Botany 3)

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6. SYSTEMATIC BOTANY. The identification and classification of our native trees, shrubs, and wild flowers. Mr. Hodgdon. Prereq.: Biol. 1-2 or Bot. 1. 1 lec.; 2 lab.; 3 cr.

51. PLANT PATHOLOGY. The nature of disease in plants, the etiology, symptomatology, and classification of plant diseases. Mr. Richards. Prereq.: Bot. 1 or Bot. 3. 1 lec.; 2 lab.; 3 cr.

52. PRINCIPLES OF PLANT DISEASE CONTROL. Exclusion, eradication, protection, and immunization, and the specific, practical methods used to control plant diseases. Mr. Richards. Prereq.: Bot. 1 or Bot. 3. 1 lec.; 2 lab.; 3 cr.

55. ADVANCED SYSTEMATIC BOTANY. The principles and laws of plant classification and nomenclature; study of plant families, field and herbarium work. Mr. Hodgdon. Prereq.: Bot. 6. Hours to be arranged. 4 cr.

56. PLANT PHYSIOLOGY. Structure and properties of the cell; absorption and movement of water; metabolism; growth and irritability. Mr. Dunn. Prereq.: Bot. 1 or Bot. 3, and one year of Chemistry. 2 lec.; 2 lab.; 4 cr.

57, 58. PROBLEMS IN (a) SYSTEMATIC BOTANY (b) PLANT PHYSIOLOGY, AND (c) PLANT PATHOLOGY. Elective only upon consultation with Head of Section. Mr. Hodgdon, Mr. Dunn, and Mr. Richards. Hours to be arranged. 2 to 6 credits. (Formerly Botany 53, 54.)

COURSES PRIMARILY FOR GRADUATE STUDENTS

102. PLANT ECOLOGY. Requirements for growth; specialization and adaptation; geographic and physiographic relations. Regional floras. Interpretation and classification of habitat. Specific problems are assigned. Mr. Hodgdon. Prereq.: Bot. 52. Incidental lectures, laboratory and field work. 4 cr.

103. MYCOLOGY. Studies of the parasitic and saprophytic fungi, their growth, reproduction, and identification. Mr. Richards. Laboratory and assigned reading. 1 lec.; 2 lab.; 3 cr.

105. ADVANCED PLANT PHYSIOLOGY. Absorption, translocation, transpiration, and excretion of water, and effect of environmental factors upon these phenomena; permeability and mineral nutrition. Mr. Dunn. Prereq.: Bot. 56 or equivalent. Conferences, laboratory, and assigned reading. 3 cr. (*Note:* Both Bot. 105 and 106 should be taken for a complete covering of the subject.)

106. ADVANCED PLANT PHYSIOLOGY. Photosynthesis; respiration, growth; reproduction; and movement; effect of environmental factors

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on these phenomena. Mr. Dunn. Prereq.: Bot. 56 or equivalent. Conferences, laboratory, and assigned reading. 3 cr.

107. ADVANCED PLANT HISTOLOGY. A methods course in embedding, sectioning, and staining the fungi and tissues of higher plants. Mr. Richards. Prereq.: Bot. 1. Laboratory and assigned reading. 3 cr.

ZOÖLOGY

MR. JACKSON, *In Charge*

7-8. GENERAL ZOÖLOGY AND COMPARATIVE ANATOMY. Basic course for Zoölogy majors and pre-medical students, dealing with anatomy of invertebrates and vertebrates. Fundamental principles of Zoölogy. Selected invertebrate and vertebrate types dissected in the laboratory. Mr. Moore. Prereq.: Biol. 1-2. 2 lec. or rec.; 2 lab.; 4 cr. (Formerly Zoölogy 15-16.)

17-18 HUMAN ANATOMY AND PHYSIOLOGY. The structure and function of the human body, with a detailed study of the different systems. Collateral reading, written reports, and conferences. Mrs. Richardson. Prereq.: Biol. 1-2. 3 lec.; 3 cr.; optional laboratory, 4 cr.

19. KINESIOLOGY. A study of bodily movement. Special emphasis is given to the relation of skeleton, muscles, nerves, and joints in movement. Mrs. Richardson. Prereq.: Zoöl. 17-18. 3 lec. or rec.; 3 cr.

ADVANCED COURSES IN ZOÖLOGY

All the following courses require Junior standing.

51. PARASITOLOGY. An introductory course concerned with some of the more important parasites causing diseases of man and animals. Living materials will be used as far as possible. Mr. Dobrovolny. Prereq.: Biol. 1-2 and permission of the instructor. 2 lec.; 2 lab.; 4 cr.

52. PATHOLOGY. The principles of general pathology of vertebrates including man. The course is designed for students in the fields of Laboratory Technique, Nursing, and Applied Biology. Pre-medical students are strongly advised not to elect this course. Mr. Dobrovolny. Prereq.: Zoöl. 53, Bact. 1, and permission of the instructor. 2 lec.; 2 lab.; 4 cr.

53. HISTOLOGY. This course gives the student a familiarity with the microscopical anatomy of the principal tissues and organs of vertebrates. Mr. Dobrovolny. Prereq.: Biol. 1-2 and one year of Biol., and permission of the instructor. 2 lec.; 2 lab.; 4 cr.

54. EMBRYOLOGY. A study of the fundamental principles of development. The developmental process from the egg to the formation

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of the body and the establishment of the principal organs and systems. Mr. Dobrovolny. Prereq.: Biol. 1-2 and one year of Zoöl. 2 lec.; 2 lab.; 4 cr.

55. **INVERTEBRATE ZOÖLOGY.** A survey of the major invertebrate groups, exclusive of insects, with emphasis on free-living forms. Evolution of various phyla and their ecological relationships. Mrs. Harrington. Prereq.: Biol. 1-2 and permission of the instructor. 2 lec.; 2 lab.; 4 cr.

57, 58. **LABORATORY TECHNIQUE.** Methods in histologic technique and examination of blood, urinary sediments, parasites, and zoölogical preparations. Mr. Dobrovolny. Prereq.: Zoöl. 53 or equivalent and permission of the instructor. 1 lec.; 2 lab.; 3 cr.

59, 60. **ADVANCED PHYSIOLOGY.** Human physiology with special emphasis on nutrition, circulation, respiration, excretion, and secretion. Lectures, assigned topics, and laboratory experiments. Mrs. Richardson. Prereq.: Biol. 1-2 and one year of Zoöl. 3 lec. or rec.; 3 cr.; 3 lec. or rec.; 1 lab.; 4 cr., by permission of the instructor.

61. **HEREDITY AND VARIATION.** A study of the physical basis of inheritance, expression, and interaction of the hereditary units, linkage, and variation. Mrs. Richardson. Prereq.: Biol. 1-2 and one year of Zoöl. lec. or rec.; 3 cr.; optional lab., 4 cr.

64. **NEUROLOGY.** Practical study of morphology, physiology, and histology of the human nervous system. Mrs. Richardson. Prereq.: Biol. 1-2 and one year of Zoöl. 3 lec. or rec.; 1 lab.; 4 cr.

71, 72. **ECOLOGY OF THE LAND VERTEBRATES.** The habits, habitat, life history and economic importance of the land vertebrates with emphasis on their conservation and ecological relationships. Field methods and techniques as applied to these groups will be considered. Mr. Jackson. Prereq.: 12 hrs. of Biology; 2 lec. 1 lab.; 3 cr.

73, 74. **ECOLOGY OF THE FRESH-WATER VERTEBRATES.** The habits, habitat, and life history of the fresh-water vertebrates of North America with special emphasis on those forms occurring in eastern United States. Special consideration will be given to their conservation and ecological relationships. Field methods as applied to aquatic forms will be considered. Mr. Jackson. Prereq.: 12 hrs. of Biology; 2 lec.; 1 lab.; 3 cr.

75, 76. **MARINE BIOLOGY AND OCEANOGRAPHY.** A study of marine life with special emphasis on the economic species of fish and shellfish of the northeastern Atlantic coast. Problems concerning their utilization and conservation, together with special methods in oceanography, will be considered. Mr. Jackson. Prereq.: 12 hrs. of Biology. 2 lec.; 1 lab.; 3 cr. (Not offered during regular college year 1946-1947.)

BIOLOGY

95, 96. LIMNOLOGY. Factors affecting biological productivity of fresh-water lakes and streams. Adapted primarily for students interested in fish and game management, wild life conservation, and in teaching of Biology. The Second Semester's work will deal with special problems in Limnology. Mr. Moore. Prereq.: Permission of the instructor. 2 lec.; 2 lab.; 4 cr.

97, 98. SPECIAL PROBLEMS AND SEMINAR. Seminar discussions on current zoölogical literature conducted each week. Advanced students may elect a special problem provided they present a detailed outline of the subject and can furnish adequate proof of their ability to carry it out with equipment available. Head of the Department and members of the staff. Prereq.: Permission of the Department Chairman. 1-4 cr.

SERVICE COURSES

48. GENERAL ZOÖLOGY. The principles of animal life, with special emphasis on human anatomy and physiology; the general principles of physiology, embryology, and genetics as applied to various forms of animals. Required of Freshmen in Agriculture. Open only to students in Agriculture. Mrs. Harrington. 3 lec.; 3 cr.

49. GENETICS. The physical basis of inheritance; laws governing Mendelian inheritance and their application to plant and animal breeding. Mrs. Richardson. For Agricultural students. 2 lec. or rec.; 2 cr.

COURSES PRIMARILY FOR GRADUATE STUDENTS

101, 102. ADVANCED VERTEBRATE TAXONOMY AND ECONOMIC FIELD ZOÖLOGY. A critical examination of select groups of vertebrates with special reference to local forms, their classification, distribution, and general ecology and conservation. The laboratory work will deal with economic field Zoölogy and will consist of life history studies, detailed ecological surveys of local areas, control of injurious animals, food habit studies, census taking, and studies of factors controlling animal populations. Mr. Jackson. Prereq.: 3 years work in Biology. 2 lec.; 2 lab.; 4 cr.

107, 108. BIOLOGY OF DEVELOPMENT. A study of the factors involved in the structure of the cell, histogenesis, and in organogeny. The problems related to cell structure and function will be discussed. Cell specificity, physiological maturity, symmetry, organization, rate of development and maturation will be considered. Mr. Dobrovolny. Prereq.: Three years work in Biology, including Histology and Embryology. 2 rec.; 2 lab.; 4 cr.

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111, 112. PROBLEMS IN BIOLOGY. This course involves reading, laboratory work, and conferences on special problems approved by the staff. Head of Department and staff. Prereq.: Permission of the Head of the Department. 1 to 4 cr.

BUILDING CONSTRUCTION

E. T. HUDDLESTON, *Professor of Architecture*

(Register the following subjects as: B-CE 11, 12 etc.)

11, 12. DOMESTIC ARCHITECTURE. A comprehensive view of the architectural profession and the building construction industry to the end that the relationships of the architect, engineer, contractor, materials producer, and client may be better understood. A brief history of domestic architecture with special emphasis on early American housing, present-day and its influence. The solution of modern housing problems to develop the relation of the house plan to family requirements, individual site, garden, accessory buildings, and the community. 11, 2 rec.; 2 cr. 12, 1 rec.; 1 lab.; 2 cr. Elective by permission of instructor.

21-22. BUILDING CONSTRUCTION. Basic modern building materials and their use in the construction of walls, columns, floors, roofs, doors, windows, etc., illustrating their varied application to contemporary architectural usage. Principles of structural design and an analysis of structural systems as applied to wood frame house, light and heavy timber, steel and reinforced concrete construction. The relation of structural systems in the solution of various types of building problems with special emphasis given to building code requirements for safety. 21, 3 rec.; 3 cr. 22, 2 rec.; 1 lab.; 3 cr.

31-32. PROFESSIONAL PRACTICES. The personal, ethical, business, and legal relations of the architect and consulting engineers with clients, contractors, etc. Procedure in the conduct of an architect's office with the preparation of complete contract documents for an assigned construction job, including advertisement, bond, form of proposal, information for bidders, agreement form, and general conditions covering the operational relations of the various parties to the contract. The fundamentals of specification writing and methods of estimating and appraising buildings. 31, 3 rec.; 3 cr. 32, 2 rec.; 1 lab.; 3 cr.

BUSINESS ADMINISTRATION

(See page 197.)

CHEMISTRY

CHEMISTRY AND CHEMICAL ENGINEERING

HAROLD A. IDDLES, *Professor*; OSWALD T. ZIMMERMAN, *Professor*; MELVIN M. SMITH, *Associate Professor Emeritus*; JAMES A. FUNKHAUSER, *Associate Professor*; ALBERT F. DAGGETT, *Associate Professor*; EDWARD R. ATKINSON, *Associate Professor*; JOHN L. TORGESEN, *Assistant Professor*; HELMUT M. HAENDLER, *Assistant Professor*; EDWARD R. GRILLY, *Assistant Professor*; HEMAN C. FOGG, *Demonstrator*.

BREAKAGE. A breakage deposit is required in certain laboratory courses, from which the actual breakage is deducted. The deposit receipt must be presented to the instructor at the first class meeting.

1-2. **GENERAL CHEMISTRY.** A broad course in Elementary Chemistry with many lecture demonstrations and some laboratory practice. Topics of interest to the professional student and of general interest are presented. For Liberal Arts and Agriculture students. Messrs. Smith, Funkhouser, Torgesen, and assistants. 2 lec.; 1 rec.; 1 lab.; 4 cr.

3-4. **GENERAL CHEMISTRY.** The fundamental laws and conceptions of Chemistry, including a study of the non-metals and metals and their compounds. The theoretical principles are illustrated by many lecture demonstrations, and the applications of Chemistry in the professions are explained. Messrs. Iddles, Smith, Funkhouser, Atkinson, Haendler, Grilly, and assistants. For students who plan to take further courses in the Department of Chemistry. 2 lec.; 1 rec.; 1 lab.; 4 cr.

6. **INORGANIC CHEMISTRY.** A continuation of Chemistry 3 covering the fundamental laws and conceptions of Chemistry involved in a study of the non-metals and metals and their compounds. Mr. Iddles, Mr. Smith, and assistants. Prereq.: Chem. 3, Mathematics 5, and permission of instructor. 2 lec.; 1 rec.; 3 lab.; 6 cr.

11-12. **SURVEY OF CHEMISTRY.** Lectures and demonstrations on general Chemistry, designed for the pursuit of Chemistry as an element of general culture rather than as professional training, and for a knowledge of the spirit of a branch of science on which much of our present-day civilization is based. Textbook: Findlay, *The Spirit of Chemistry*. Mr. Iddles. Elective for Sophomore, Junior, and Senior students. 3 lec.; 3 cr.

21. **SEMI-MICRO QUALITATIVE ANALYSIS.** The fundamental theories of solutions and colloids as applied to the reactions of qualitative analysis. Problem work is required. The laboratory work uses the semi-micro technique and provides ample experience in the analysis of simple and complex mixtures. For Chemistry majors. Mr. Haendler and assistant. Prereq.: Chem. 4 or 6. 2 lec.; 2 lab.; 4 cr. Deposit: \$5 for the semester.

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22. QUANTITATIVE ANALYSIS. The theory and laboratory technique of the more common determinations of gravimetric and volumetric analysis. Emphasis on the solution of problems. A comprehensive study of the more common analytical methods. Mr. Daggett and assistants. Prereq.: Chem. 21. 2 lec.; 3 lab.; 5 cr. Deposit: \$5 for the semester.

25, 26. INTRODUCTORY QUANTITATIVE AND QUALITATIVE ANALYSIS. First semester: The theory, problems, and technique involved in some of the common procedures in both gravimetric and volumetric quantitative methods. Second semester: The theory and problems of qualitative analysis. The laboratory work is conducted on a semi-micro scale and presents the special methods of technique involved. For Pre-medical and Pre-dental students, as a preparation for various sciences, and as a preparation for secondary school teaching. Messrs. Daggett, Haendler, and assistants. Prereq.: Chem. 4. 1 lec.; 2 lab.; 3 cr. Deposit: \$10 for the year.

31. STOICHIOMETRY AND TECHNICAL QUANTITATIVE ANALYSIS. The laboratory portion provides sufficient experience to develop the skill and special technique necessary for the analysis of alloys, gaseous, liquid, and solid fuels, gas mixtures, oils, and lubricants. The lectures interpret the results of technical analyses and their application to the calculation of heat and material balances in industrial processes. Mr. Daggett. Prereq.: Chem. 22. 3 lec.; 2 lab.; 5 cr. Deposit: \$5 for the semester.

45, (45). ORGANIC CHEMISTRY. An introductory but comprehensive study of the chemistry of carbon compounds with emphasis on the particular phases of the subject needed by students preparing to be technicians, nurses, majors in Biological Sciences, and others, where a brief course is desired. Mr. Atkinson. Prereq.: Chem. 3-4. (Elective for medical technicians, nurses, majors in Biology, Pre-dental students.) 3 lec.; 2 lab.; 5 cr. Deposit: \$5.

47-48. ORGANIC CHEMISTRY. Lectures on the principal classes of organic compounds, aliphatic and aromatic, with emphasis on class reactions and structural theory. Laboratory exercises in the preparation and purification of selected organic compounds; also the use of group reactions for the identification of organic substances in a systematic scheme of qualitative organic analysis. Mr. Iddles. Prereq.: Chem. 22. 3 lec.; 2 lab.; 5 cr. Deposit: \$10 for the year.

53-54. ORGANIC CHEMISTRY. Lectures on the chief divisions of Organic Chemistry, aliphatic and aromatic, with the needs of the preprofessional student in mind. A more detailed consideration of carbohydrates and proteins follows. The laboratory technique of organic chemical methods as illustrated in the preparation and puri-

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fication of typical organic compounds. Mr. Funkhouser. Prereq.: Chem. 3-4, and 26 when possible. Chem. 53 alone does not meet the Pre-medical and Pre-dental requirements. 3 lec.; 2 lab.; 5 cr. Deposit: \$10 for the year.

55-56. STRUCTURAL AND THEORETICAL PROBLEMS OF MODERN ORGANIC CHEMISTRY. An intensive review of the methods of preparation and reactions of the principal classes of organic compounds. Emphasis is on the working of assigned problems. The electron theory of Organic Chemistry is used to correlate the chemical behavior of unsaturated compounds, free radicals, and other classes. Mr. Atkinson. Prereq.: Chem. 48 or 54. 3 lec.; 3 cr.

62. ADVANCED METHODS OF QUANTITATIVE ANALYSIS. The theory and technique of special and recently developed methods of analysis such as colorimetry, turbidimetry, potentiometry, and spectography. Sufficient experience is obtained to allow the development of considerable skill in even the more complex methods. Mr. Daggett. Prereq.: Chem. 22. 3 lec.; 2 lab.; 5 cr. Deposit: \$5 for the semester.

71-72. UNIT PROCESSES. The important inorganic and organic industrial chemical processes from the point of view of the basic chemical reactions and physical operations involved. Mr. Zimmerman. Prereq.: Chem. 22. 2 lec.; 2 cr.

74-75. UNIT OPERATIONS. The theory and practice of the fundamental chemical engineering unit operations, including flow of fluids, flow of heat, evaporation, distillation, drying, filtration, gas absorption, extraction, humidification and air conditioning, crystallization, crushing and grinding, and size separation. Mr. Zimmerman. Prereq.: Chem. 71, 83. 3 lec.; 3 cr.

76. CHEMICAL ENGINEERING ECONOMICS. The economic factors involved in industrial chemical processes and the application of economic balances to the design and selection of chemical engineering equipment. Mr. Zimmerman. Prereq.: Chem. 75, 77. 3 lec.; 3 cr.

77. UNIT OPERATIONS LABORATORY. Experiments based upon the unit operations are performed on typical chemical engineering equipment. Mr. Zimmerman. Prereq.: Chem. 74, 84. 3 lab.; 3 cr. Deposit: \$5 for the semester.

78. CHEMICAL PLANT DESIGN. The design and layout of chemical plants and equipment. The assigned problems are of a practical nature, such as the manufacture of some chemical product, and their solution will include the design or selection of all equipment and drawings of equipment, plant, and layout. Mr. Zimmerman. Prereq.: Chem. 75, 77. 3 lab.; 3 cr.

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79. CHEMICAL ENGINEERING THERMODYNAMICS. A study of the fundamental laws of energy and their application to chemical engineering problems. Mr. Zimmerman. Prereq.: Chem. 84 and Chem. 74. 2 lec.; 1 rec.; 3 cr.

80. CHEMICAL ENGINEERING PROJECT. Each student selects a research problem which he carries out independently under Faculty supervision. Intensive study in both the library and the laboratory and a satisfactory thesis at the completion of the work are required. Mr. Zimmerman. Prereq.: Chem. 75, 77. 4 lab.; 5 cr. Deposit: \$5 for the semester.

82. PRE-MEDICAL AND PRE-DENTAL PHYSICAL CHEMISTRY. A brief review and survey of the more important fundamental topics of Physical Chemistry; thereafter, those topics of Physical and Theoretical Chemistry which have application in the medical, biological, and agricultural sciences. Mr. Torgesen. Prereq.: Chem. 2, Phys. 2, 6, or 8, Math. 6 or equivalent. 3 lec.; 3 cr.

83-84. ELEMENTARY PHYSICAL CHEMISTRY. The properties of gases, liquids, and solids; thermochemistry and thermodynamics; solutions, chemical equilibria, reaction rates, conductance and electromotive force. Mr. Torgesen. Prereq.: Chem. 22, Math. 18, Phys. 8. 3 lec.; 2 lab.; 5 cr. Deposit: \$10 for the year.

85-86. ADVANCED PHYSICAL CHEMISTRY. A complete review of elementary Physical Chemistry followed by a study of the structure and properties of matter. In the latter part of the course the subject matter will include radioactivity, atomic structure, crystal structure, and related topics. Mr. Grilly. Prereq.: Chem. 84 or equivalent. 3 lec.; 3 cr.

87-88. CHEMICAL LITERATURE AND SEMINAR. Use of the Chemical Library; student reports on topics of interest. Mr. Atkinson. Prereq.: Chem. 62 and Chem. 48. 1 lec.; 1 cr.

89-90. THESIS. A thesis covering the related background and experimental observations of the year's investigation in some selected subject is required. Members of the staff. For Seniors in Chemistry, who have completed Chem. 48, 62, and 84. 5 lab.; 5 cr. Deposit: \$10 for the year.

COURSES PRIMARILY FOR GRADUATE STUDENTS

111. ORGANIC CHEMISTRY. The chemistry of the polynuclear compounds and heterocyclic systems. Mr. Iddles. 3 rec.; 3 cr.

112. ORGANIC CHEMISTRY. The chemistry of natural products. Mr. Iddles. 3 rec.; 3 cr.

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115. ORGANIC CHEMISTRY LABORATORY. Qualitative Analysis. The reactions and properties of organic compounds. Use of group reactions in the identification of organic substances. Mr. Atkinson. 1 rec.; 2 lab.; 3 cr.

116. ORGANIC CHEMISTRY LABORATORY. Micro-Quantitative Analysis. The combustion for carbon and hydrogen, Dumas nitrogen, Kjeldahl nitrogen, estimation of halogens, of sulphur, and of organic radicals. Mr. Atkinson. 1 rec.; 2 lab.; 3 cr.

121. PHYSICAL CHEMISTRY. CHEMICAL THERMODYNAMICS. The application of thermodynamics to chemistry. The principles of thermodynamics will be thoroughly reviewed. These principles will be applied in detail to the phase rule, chemical equilibrium, electromotive force, theory of solutions, specific heats, and similar topics. Mr. Grilly. Prereq.: One year of Physical Chemistry. 3 rec.; 3 cr.

122. PHYSICAL CHEMISTRY. CHEMICAL KINETICS. A study of the kinetics of homogeneous and heterogeneous reactions in gaseous and liquid systems, including an introduction to photo-chemistry. Mr. Daggett. Prereq.: One year of Physical Chemistry. 3 rec.; 3 cr.

124. ADVANCED PHYSICAL CHEMISTRY LABORATORY. The more modern experimental technique of physical chemistry. Emphasis on the needs and interests of each individual student. Topics will include the measurement of refractive index, molecular rotation, activity coefficients by vapor pressure, and E. M. F. methods, heterogeneous and homogeneous equilibrium constants, and kinetic constants. Mr. Torgesen. 1 lec.; 2 lab.; 3 cr.

131-132. COLLOQUIUM IN CHEMISTRY. A description of the series of lectures to be presented will be announced for each semester. *Colloids*, Mr. Torgesen; *Advanced Inorganic Chemistry*, Mr. Haendler; *History of Chemistry*, Mr. Funkhouser; *Organic Chemistry*, Mr. Atkinson; *Physical Chemistry*, Mr. Grilly; *Analytical Chemistry*, Mr. Daggett. 3 lec.; 3 cr.

135. UNIT OPERATIONS—FLUID FLOW, HEAT FLOW, AND EVAPORATION. An advanced course dealing with the fundamental theory and applications of these operations. Mr. Zimmerman. Prereq.: Chem. 74 or equivalent. 2 lec. or rec.; 2 cr.

136. UNIT OPERATIONS—DIFFUSION OPERATIONS. An advanced study of the principles of diffusion and their application to the unit operations of distillation, absorption, drying, humidification and extraction. Mr. Zimmerman. Prereq.: Chem. 75 or equivalent. 2 lec. or rec.; 2 cr.

141, 142. SEMINAR. Presentation and discussion of recent investigations in the field of chemistry. No credit.

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151, 152. PROBLEMS IN CHEMISTRY. Conferences, library and experimental work in some field of chemistry. *Analytical Chemistry and Photo-Chemistry*, Mr. Daggett; *Inorganic Chemistry*, Mr. Haendler; *Organic Chemistry*, Mr. Iddles, Mr. Funkhouser, Mr. Atkinson; *Physical Chemistry*, Mr. Grilly, Mr. Torgesen; *Chemical Engineering*, Mr. Zimmerman. Prereq.: Special permission. Credits to be arranged.

CIVIL ENGINEERING

EDMOND W. BOWLER, *Professor*; RUSSELL R. SKELTON, *Associate Professor*; CHARLES O. DAWSON, *Associate Professor*.

2. SURVEYING. The theory and use of surveying instruments and methods, including measurement of angles, direction and distance, differential leveling, land surveying, note keeping, and calculations and plotting relating to traverses. Mr. Bowler. Prereq.: Math 5, or Math. 2 carried in parallel. 1 rec.; 1 lab.; 2 cr.

3-4. SURVEYING. Theory and use of surveying instruments and methods on plane, precise, and topographic surveys, including: the use and adjustment of tapes, transits, levels, and plane tables, topographic mapping, solution of miscellaneous problems in topographic surveying, highway and railway curves, observations and reduction of observations on the sun and Polaris for latitude, time, and direction, profile leveling, city surveying, base line measurements, triangulation, and mapping programs in the United States. Some time is spent in the practice of the execution of topographic symbols and lettering. A topographic survey of a small area is completed in the field by the transit and stadia method and a map of the same area is plotted in the drafting room. A topographic map of a small area is also made by the plane table method. Mr. Dawson. Prereq.: C.E. 2. C.E. 3: 3 rec.; 3 lab.; 6 cr. C.E. 4: 1 rec.; 2 lab.; 3 cr.

6. ROUTE SURVEYING. Theory and practice relating to preliminary and final location surveys for highways, railways, and pipe lines. Theory and problems in earthwork, the mass diagram, grade lines, vertical curves, cross sectioning and slope stakes. Mr. Dawson. Prereq.: C.E. 4 either in parallel or as a prerequisite. 1 rec.; 2 lab.; 3 cr.

9, (9). SURVEYING. The theory and use of tape, level, and transit in making plane surveys, computations and drafting exercises necessary to plot field notes, surveys for record, and the economics and use of surveys for all purposes. Mr. Dawson. Prereq.: Math. 6. 1 rec.; 1 lab.; 2 cr.

11. SURVEYING. Topographic surveys, determination of earthwork quantities, location of structures, layout of buildings before and during

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construction, and other special surveying problems pertaining to building construction. Mr. Dawson. Prereq.: C.E. 2 or C.E. 9. 1 lec. or rec.; 2 lab.; 3 cr.

15. ENGINEERING MATERIALS. Methods of manufacture, physical properties, and the application of the various materials used in engineering works, including timber, steel, stone, brick, cement, concrete, and bituminous materials. Laboratory experiments and reports on the testing of cements and concrete specimens. Mr. Skelton. Prereq.: Geol. 7 and M.E. 9 either in parallel or as a prerequisite. 2 rec.; 1 lab.; 3 cr.

23, (23). FLUID MECHANICS. Properties of fluids; statics of fluids; theorems and criteria of fluid motion; fluid flow through orifices, tubes, nozzles and pipes; flow over weirs; flow in open channels; dynamics of fluids in motion; a brief treatment of hydraulic turbines. Mr. Bowler. Prereq.: M.E. 7 or 9. 3 rec.; 3 cr.

27-28. THEORY OF STRUCTURES. The graphical and analytical methods of determining reactions, moments and shears in beams, girders and trusses under fixed and moving loads, and the stresses in various structures including simple, subdivided and multiple trusses, portals, viaducts, cantilevers, and three-hinged arches. The computation of deflections and the application of the method of least work to statically indeterminate structures. Mr. Bowler. Prereq.: Math. 8, and M.E. 9 and 10 as prerequisites or in parallel. 3 rec.; 1 lab.; 4 cr.

31. COMMUNITY PLANNING. An introduction to the subject of Community Planning, especially designed for those students having a major interest in Civil Engineering or Building Construction, having the following purposes: (1) to acquaint the student with planning programs and processes, (2) to study the content and extent of desirable planning programs, (3) to indicate to the engineer, his place in the preparation and execution of a planning program. For Seniors. Elective by permission of the instructor. Mr. Dawson. 3 lec. or rec.; 3 cr. (Not given in 1946-1947.)

38. THESIS. The student selects a subject of engineering, scientific, or commercial interest for investigation or design and presents his results as a thesis in which equal emphasis is placed upon composition and accuracy of subject matter. Mr. Bowler, Mr. Skelton, and Mr. Dawson. Prereq.: English 41. 1 conference each week; 3 cr. Students passing this course will receive a grade of Cr.

41, 42, 43, 44. STUDENT CHAPTER OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS. Junior and Senior students in Civil Engineering are required to join the student chapter of the American Society of Civil Engineers. In addition to its ordinary life under the guidance

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of student officers, the chapter meets once a week under the direction of an instructor, when prepared addresses by the student members are presented. Mr. Bowler. No credit. Students passing this course will receive a grade of Cr.

52. FLUID MECHANICS. Properties of fluids; statics of fluids; theorems and criteria of fluid motion; fluid flow through orifices, tubes, nozzles and pipes; flow over weirs; flow in open channels; dynamics of fluids in motion. Laboratory exercises and stream gaging practice. Mr. Bowler. Prereq.: Math. 8. 4 rec.; 1 lab.; 5 cr.

61. HIGHWAY ENGINEERING AND TRANSPORTATION. The economics of location and design of highways and city streets; methods of construction, maintenance, and specifications governing the various types of surfaces; administration and financing of highway systems; special emphasis on highway transportation. Field location and the complete design of a section of highway are included. Mr. Skelton. Prereq.: C.E. 4, 6, and 15. 2 rec.; 2 lab.; 4 cr.

62. SOIL MECHANICS AND FOUNDATIONS. The principles underlying the behavior of various soils when subjected to structural loads. Problems and methods encountered in foundation design and construction, building codes and legal aspects of foundation construction, also test borings and other underground exploration methods. Mr. Skelton. Prereq.: C.E. 65. 2 lec.; 1 lab.; 3 cr.

63-64. HYDRAULIC AND SANITARY ENGINEERING. Precipitation, water losses, run-off, drainage areas, stream flow, water power estimates, hydraulic turbines, dams and waterways; the sources, quantity, quality, and sanitary aspects of public water supplies; the methods of purification and distributing systems; the theory and problems of sewerage, the principles governing the disposal of sewage and the various methods of sewage treatment. Mr. Bowler. Prereq.: C.E. 52. 3 rec.; 1 lab.; 4 cr.

65. STRUCTURAL DESIGN. Theory and problems relating to the design of steel and timber structures. A steel girder and steel roof truss are completely designed and working drawings prepared. Individual parts of steel bridge trusses and buildings are studied and designed. Emphasis on economy of design, accuracy of results, clarity of vision, and analytical thought. Mr. Skelton. Prereq.: C.E. 28. 2 rec.; 2 lab.; 4 cr.

66. REINFORCED CONCRETE STRUCTURES. Theory and design of reinforced concrete structures, such as beams, slabs, columns, footings, retaining walls, and small bridges. Mr. Skelton. Prereq.: C.E. 65. 2 rec.; 2 lab.; 4 cr.

DAIRY HUSBANDRY

COURSES PRIMARILY FOR GRADUATE STUDENTS

101, 102. ADVANCED HYDRAULICS. Dimensional analysis, dynamic similarity, mechanics of viscous fluids, fluid flow in pipes, non-uniform flow, alternate stages of flow in open channels, hydraulic jump, and their application to engineering practice. Mr. Bowler. Prereq.: C.E. 64. 3 rec.; 3 cr.

103, 104. SOIL MECHANICS. The physical and mechanical properties of soil in relation to engineering structures. The theory of consolidation, shearing resistance, bearing capacity, settlement, earth pressure, and their applications. Mr. Skelton. Prereq.: Permission of the instructor. 3 lec.; 3 cr.

105. SOIL TESTING FOR ENGINEERING PURPOSES. This course is arranged to cover the essential soil tests for engineering purposes. Identification of soils, determination of water content, void ratio, specific gravity, grain size distribution, and Atterberg limits. Tests for the physical properties include: permeability, capillarity, compressibility, rate and magnitude of consolidation, and shearing resistance. Mr. Skelton. Prereq.: C.E. 103 in parallel or as a prerequisite. 1 lec.; 3 lab.; 4 cr.

DAIRY HUSBANDRY

KENNETH S. MORROW, *Professor*; HERBERT C. MOORE, *Associate Professor*; HARRY A. KEENER, *Associate Professor*; NICHOLAS F. COLOVOS, *Assistant Professor*.

6. FUNDAMENTALS OF DAIRYING. A general survey of the dairy industry; the composition and properties of milk and other dairy products, dairy manufacturing processes, market milk, the selection and judging of dairy cattle. Mr. Morrow, Mr. Moore. 2 lec.; 1 lab.; 3 cr.

23. DAIRY CATTLE. Purebred dairy cattle; breed history; pedigrees; family lines and methods of outstanding breeders; the application of the principles of genetics to the improvement of dairy cattle; herd analysis. Mr. Morrow. 2 lec.; 1 lab.; 3 cr.

27. BUTTER AND CHEESE. (1) The secretion and the chemical and physical properties of milk; pasteurization; cream ripening; starters; churning; organization and operation of factories. (2) The manufacturing and marketing of more important types of cheese. Mr. Moore. 1 lec.; 1 lab.; 2 cr.

29. DOMESTIC DAIRYING. Nutritive value of milk and milk prod-

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ucts. Laboratory exercises in the manufacture of dairy products. Mr. Moore. 2 lec.; 1 lab.; 3 cr.

30. DAIRY BACTERIOLOGY. The application of bacteriological principles to the production and processing of milk and other dairy products. Mr. Moore. 2 lec.; 2 lab.; 4 cr.

33, 34. DAIRY CATTLE AND DAIRY PRODUCTS JUDGING. (1) Comparative judging of dairy cattle, using animals in the University herd and in near-by herds. (2) The various standards and grades of dairy products with practice in judging milk, butter, cheese, and ice cream. Mr. Morrow, Mr. Moore. 1 lab.; 1 cr.

36. ADVANCED DAIRY CATTLE JUDGING. Continuation of Dairy Husbandry 33, 34. Emphasis on training for participation on dairy cattle judging teams. Mr. Morrow. Prereq.: Dairy Husbandry 34. 1 lab.; 1 cr.

60. DAIRY SEMINAR. A study of Experiment Station and other literature covering recent research in the field of dairy production. Mr. Morrow, Mr. Keener. 2 lec.; 2 cr.

62. ADVANCED DAIRY SCIENCE. Basic data, fundamental observations, and discussions of research contributing to the present status of the dairy industry. Mr. Moore. 2 lec.; 2 cr.

64. MILK PRODUCTION. Feeding and management of dairy animals; calf feeding; raising young stock; feeding for economical milk production. Mr. Keener. 2 lec.; 1 lab.; 3 cr.

65. MARKET MILK. The producing, handling, and distributing of market and certified milk; dairy farm inspection; control of milk supply. Mr. Moore. 2 lec.; 1 lab.; 3 cr.

66. ICE CREAM. The making, handling, and marketing of ice cream and ices. Mr. Moore. 2 lec.; 1 lab.; 3 cr.

COURSES PRIMARILY FOR GRADUATE STUDENTS

101. ANIMAL NUTRITION. Incidental lectures, assigned reading, laboratory practice in methods of research with major emphasis on basal metabolism. Mr. Colovos. Prereq.: A major in Animal or Dairy Husbandry, or equivalent. 3 cr.

102. ADVANCED DAIRY CATTLE. Special emphasis will be given to the analysis and formulating of breeding programs and to milk secretion and factors influencing the quantity and quality of milk. Mr. Morrow. Prereq.: A major in Animal Husbandry or Dairy Husbandry. 2 lec.; 1 lab.; 3 cr.

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107. TECHNICAL CONTROL. Chemical and bacteriology laboratory methods used in the technical control of milk and milk products. Mr. Moore. Prereq.: Dairy Husbandry 10, or equivalent. 2 lec.; 1 lab.; 3 cr.

109, 110. SPECIAL PROBLEMS IN DAIRY MANUFACTURE. Detailed study of some special phase of dairy manufacturing. Mr. Moore. Prereq.: A major in Dairy Husbandry. Conferences and special assignments. 3 cr.

111, 112. SPECIAL PROBLEMS IN DAIRY PRODUCTION. Study of some special phase of breeding or feeding as related to dairy-herd management. Mr. Morrow, Mr. Keener. Prereq.: A major in Animal Husbandry or Dairy Husbandry. Conferences and special assignments. 3 cr.

DRAMATICS

(See page 216.)

ECONOMICS AND BUSINESS ADMINISTRATION

ARTHUR W. JOHNSON, *Professor*; RUTH J. WOODRUFF, *Associate Professor*; CARROLL M. DEGLER, *Associate Professor*; DORIS E. TYRRELL, *Associate Professor*; JOHN D. HÄUSLEIN, *Assistant Professor*; MYRA L. DAVIS, *Instructor*.

BUSINESS ADMINISTRATION

Note—Students who have completed two or more years of book-keeping in preparatory school will be permitted to register for Principles of Accounting 3-4 upon passing an examination covering the material of the Intermediate Accounting. 1-2. Schedule the following courses as B.Ad. 1, etc.

1-2. ACCOUNTING. The fundamentals of Accounting. Theory of debit and credit; functions and classification of accounts; modern accounting records including special and columnar books. Adjusting entries, work sheets, and financial statements. Single proprietorships, partnerships, and an introduction to corporations. Mr. Häuslein. 2 lec. or rec.; 2 lab.; 4 cr.

3-4. PRINCIPLES OF ACCOUNTING. Comprehensive study of Corporation Accounting, principles and objectives of valuation, consignments, installment selling, depreciation and depletion, funds and reserves, application of funds, and analysis of financial statements. Mr. Johnson. Prereq.: B.Ad. 2. 2 lec. or rec.; 1 lab.; 3 cr.

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5. **ADVANCED ACCOUNTING.** Advanced theory of Accounting, corporate consolidations, insolvencies, realization and liquidation problems, estate accounting. Mr. Johnson. Prereq.: B.Ad. 4 or equivalent. 2 lec. or rec.; 1 lab.; 3 cr.

6. **FEDERAL TAX ACCOUNTING.** The Federal Income Tax Law and accounting procedure in connection therewith. Social security taxes, estate and gift taxes. Mr. Johnson. Prereq.: B.Ad. 4, or permission of the instructor. 2 lec. or rec.; 1 lab.; 3 cr.

7-8. **COST ACCOUNTING.** The relation of Cost Accounting to general Accounting. The place of Cost Accounting in modern business. Types of cost systems and their application to particular lines of business. Careful analysis of methods of computing costs. Principles of cost control. Mr. Johnson. Prereq.: B.Ad. 4, or permission of the instructor. 1 lab.; 3 cr.

9-10. **HOTEL ACCOUNTING.** Theory and practice of keeping accounting and financial records for hotels. Mr. Häuslein. Prereq.: B. Ad. 1-2. 2 lec.; 1 lab.; 3 cr. (Given in alternate years; not offered in 1946-1947.)

11. **AUDITING.** Study of procedure and practice in the verification of records, analysis of accounts and the presentation of conclusions. Attention is given to the responsibilities of the auditor and the procedure and practice of preparing reports. Prereq.: B.Ad. 4 or equivalent. 2 lec. or rec.; 3 cr. (Not offered in 1946-1947.)

12. **ACCOUNTING SYSTEMS.** Study of underlying principles of building accounting systems. Designing of systems for various types of business enterprises. Prereq.: B.Ad. 4 or equivalent. 2 lec. or rec.; 1 lab.; 3 cr. (Not offered in 1946-1947.)

21-22. **COMMERCIAL LAW.** The law of contracts, agency, sales, negotiable instruments, partnerships, and corporations. Mr. Alexander. Elective for Juniors and Seniors. 3 lec. or rec.; 3 cr.

23. **BUSINESS COMMUNICATION.** Report writing, including preparation of charts, forms, and graphs. Methods of intra-office, inter-office, and inter-business communication. Preparation of instruction data for employees, minutes of meetings and manuals of company practices and procedures. Business letters of various types. 3 lec. or rec.; 3 cr. (Not offered in 1946-1947.)

24. **INTRODUCTION TO BUSINESS.** The course is designed to acquaint the student with general business problems and procedures and to provide an introduction to advanced courses. 3 lec. or rec.; 3 cr. (Not offered in 1946-1947.)

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28. **PERSONNEL ADMINISTRATION.** A study of methods and techniques employed in personnel administration from the standpoint of the executive. 3 lec. or rec.; 3 cr. (Not offered in 1946-1947.)

31. **BUSINESS ORGANIZATION AND FINANCE.** Types of business organizations and methods of financing them. 3 lec. or rec.; 3 cr. (Not offered in 1946-1947.)

34. **BUSINESS MANAGEMENT.** Fundamental principles and techniques of successful organization, management and operation of business activities. 3 lec. or rec.; 3 cr. (Not offered in 1946-1947.)

40. **GENERAL INSURANCE.** The field of Insurance; social value; physical and moral hazards; risk, its nature and economic significance; reinsurance; types of insurance coverages; fire, casualty, life, social. Fidelity and surety bonds. Mr. Johnson. 3 lec. or rec.; 3 cr.

SECRETARIAL STUDIES

Schedule the following courses as Sec. St. 1, etc.

1-2. **SHORTHAND.** Principles of Gregg shorthand with practice in transcribing from shorthand plates and class notes. Sec. St. 7-8 must either be taken in conjunction with this course or precede it. Miss McKenzie. 5 rec.; 3 cr.

3-4. **ADVANCED SHORTHAND.** A review of fundamental principles, the building of shorthand vocabulary, practice in taking dictation at increasing rates of speed, and practice in developing skill and speed in transcription. Miss Tyrrell. Prereq.: Sec. St. 2, or equivalent. 5 rec.; 3 cr.

5, (5). **PERSONAL USE TYPEWRITING.** Practice in acquiring correct typing techniques, arranging outlines, notes, themes, bibliographies, and simple tabulations. Open to any student who does not know how to typewrite. Miss Davis. 5 lab.; 1 cr.

27. **TYPEWRITING.** Practice in acquiring correct typewriting techniques, and in arranging letters, tabulations, and simple manuscripts. This course is to be taken instead of Sec. St. 7 by Secretarial students who have had Sec. 5 or the equivalent. Miss Davis. 5 lab.; 1 cr.

7-8. **TYPEWRITING.** Practice in acquiring correct typewriting techniques, and in arranging letters, tabulations, and simple manuscripts. Miss Davis. 5 lab.; 2 cr.

9-10. **ADVANCED TYPEWRITING.** Practice in tabulating and in writing business letters, legal papers, and various business forms; and practice in transcribing shorthand notes. Miss Tyrrell. Prereq.: Sec. St. 8 or the equivalent. 5 lab.; 2 cr.

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11. **FILING.** Various alphabetic, numeric, and geographic subject-matter systems of correspondence filing; cross reference; follow-up methods; filing supplies and equipment; practice in filing. Miss Davis. Prereq.: Sec. St. 7. 3 rec. or lec.; 2 cr.

13. **OFFICE MACHINES.** Duplicating methods; practice in typing master copies and stencils, and in operating a gelatin duplicator, a mimeograph, and a mimeoscope; practice in machine transcription; and an introduction to adding and calculating machines. Miss Davis. Prereq.: Sec. St. 8. 5 lab.; 2 cr.

17-18. **SECRETARIAL OFFICE PROCEDURE AND PRACTICE.** First semester, discussion of Secretarial duties and traits; problems in the discharge of various duties; and problems in office management. Second semester, 144 hours of practice Secretarial work in business offices. Miss Tyrrell. This course must be taken in conjunction with Sec. St. 3-4 and Sec. St. 9-10, or following these courses. 3 rec.; 3 cr.

19-20. **SECRETARIAL OFFICE PROCEDURE.** Discussion of Secretarial duties and traits; problems in the discharge of various duties; and problems in office management. Miss Tyrrell. For Two-Year Secretarial students holding part-time University clerical positions; not open to others except by permission of the instructor. 2 rec.; 2 cr. (Not given in 1946-1947.)

22. **ADVANCED DICTATION.** Speed building in dictation and transcription. Miss Tyrrell. Prereq.: Sec. St. 4. 3 rec.; 3 cr.

23-24. **BUSINESS WRITING.** Practice in writing various types of business letters and reports; proofreading; editing. Miss Tyrrell. 3 lec. or rec.; 3 cr.

ECONOMICS

1-2. **PRINCIPLES OF ECONOMICS.** The fundamental principles which explain the organization and operation of the economic system. Mr. Degler, Miss Woodruff. Not open to Freshmen. 3 lec. or rec.; 3 cr.

3. **ECONOMIC AND COMMERCIAL DEVELOPMENT OF THE UNITED STATES.** Miss Woodruff. 3 lec. or rec.; 3 cr.

ECONOMIC GEOGRAPHY. (See Geog. 4, page 221.)

5. **ECONOMIC AND COMMERCIAL DEVELOPMENT OF EUROPE.** Not open to Freshmen. 3 lec. or rec.; 3 cr. (Not given in 1946-1947.)

(6), 6. **PRINCIPLES OF BUSINESS.** An introduction to the organization and functioning of the several aspects of Business as represented by organization; management; labor relations and personnel; marketing;

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pricing problems; financial administration; tax problems; reorganization and consolidation. Mr. Degler. 3 lec. or rec.; 3 cr. *This course cannot be used to satisfy major requirements.*

10. TRANSPORTATION. Development and organization of transportation agencies. Prereq.: Econ. 2. 3 lec. or rec.; 3 cr. (Not given in 1946-1947.)

24. MARKETING. The economics of the marketing functions, agencies, and special problems of marketing. Mr. Degler. Prereq.: Econ. 2. (May be taken concurrently.) 3 lec. or rec.; 3 cr.

51. LABOR PROBLEMS. Historical background and present status of labor organizations and problems. Prereq.: Econ. 2. 3 lec. or rec.; 3 cr.

52. PUBLIC FINANCE. Theory and practice of public expenditures and collection of public revenues; problems and policies in financial administration, national, state, and local; taxation problems in the state of New Hampshire. Prereq.: Econ. 2. 3 lec. or rec.; 3 cr.

53. MONEY AND BANKING. Theory and practice of money and banking. Mr. Degler. Prereq.: Econ. 2. 3 lec. or rec.; 3 cr.

54. ADVANCED MONEY AND BANKING. Advanced monetary theory and some of the more practical aspects of modern banking. Prereq.: A satisfactory average in Econ. 53. Mr. Degler. 3 lec. or rec.; 3 cr.

55. CORPORATIONS. Development and forms of business organization and combination. Mr. Degler. Prereq.: Econ. 2. 3 lec. or rec.; 3 cr.

56. CORPORATION FINANCE. Methods of financing corporate enterprise. Mr. Degler. Prereq.: Econ. 2. 3 lec. or rec.; 3 cr.

57, (57). POSTWAR ECONOMIC PROBLEMS. This course will treat economic adjustments caused by total war; problems of reconversion of the economy from a condition of total war with special emphasis on postwar economic problems. Mr. Degler. Prereq.: Econ. 2. 3 lec. or rec.; 3 cr.

59, 60. SEMINAR IN CURRENT ECONOMIC PROBLEMS. Elective for Seniors majoring in Economics who have attained a satisfactory average in the Department. Recitations and reports; 3 cr.

62. PUBLIC REGULATION OF BUSINESS. The Federal control of business organizations and their activities with special reference to recent legislation affecting business. Mr. Alexander. Elective for Juniors and Seniors. 3 lec. or rec.; 3 cr.

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63. INTERNATIONAL ECONOMICS. Theory of international trade, foreign exchange, balance of international payments, tariffs and protection; the economic aspects of international relations, with particular reference to recent policies. Miss Woodruff. Prereq.: Econ. 2. 3 lec. or rec.; 3 cr.

The Departments of Economics and Business Administration, Agricultural Economics, Government, History, Mathematics, and Sociology offer jointly a course designed to meet the needs of those Social Science students who are interested primarily in Statistics as applied to the Social Science fields. (See page 275.)

COURSES PRIMARILY FOR GRADUATE STUDENTS

181, 182. READING AND RESEARCH IN ECONOMICS. With the advice and consent of the instructor, a student prepared by training and experience to do independent work may register for a reading and research course. The student will undertake assigned problems and readings under the guidance of the instructor. Hours and credits by arrangement. *Economic History*, Miss Woodruff; *International Trade*, Miss Woodruff; *Corporations*, Mr. Degler; *Money and Banking*, Mr. Degler.

EDUCATION

A. MONROE STOWE, *Professor*; HARLAN M. BISBEE, *Associate Professor Emeritus*; EVERETT B. SACKETT, *Associate Professor*; WAYNE S. KOCH, *Assistant Professor*; AUSTIN L. OLNEY, *Assistant Professor*.

HERBERT A. CARROLL, *Professor (Educational Psychology)*; HELEN F. McLAUGHLIN, *Professor (Home Economics-Education)*; CLIFFORD S. PARKER, *Professor (Language-Education)*; CARL LUNDHOLM, *Professor (Physical Education)*; MARION C. BECKWITH, *Associate Professor (Physical Education)*; HAROLD I. LEAVITT, *Associate Professor (General Science)*; JOHN S. WALSH, *Associate Professor (Latin-Education)*; HARRY D. BERG, *Assistant Professor (History-Education)*; GEORGE R. THOMAS, *Associate Professor (Art-Education)*; *EARL H. LITTLE, *(Agriculture-Education)*; PAUL E. SCHAFER, *Assistant Professor Biology-Education*; DONALD M. PERKINS, *Assistant Professor (Mathematics-Education)*.

RAYMOND I. BEAL, JOHN N. COTTON, HAROLD T. RAND, CHARLOTTE SMITH and MURRAY H. WATSON, *Consultants in Teacher Education*.

*Representing the State Department of Education in the administration of the Smith-Hughes Act.

EDUCATION

COURSES IN EDUCATION

41, (41). PRINCIPLES OF EDUCATIONAL PSYCHOLOGY. A study of such principles of behavior as are of service to teachers in their efforts to influence intelligently the intellectual, emotional, social, and personality development of their pupils. Mr. Stowe and Mr. Koch. Open to Sophomores, Juniors, and Seniors. 3 rec.; 3 cr.

(42), 42. EDUCATIONAL PSYCHOLOGY OF ADOLESCENCE. The purpose of this course is to help students to acquire an appreciative understanding of adolescents and their educational needs, and of the most effective ways of meeting those needs. Mr. Stowe. Prereq.: Psych. 11, or Ed. 41. 3 rec.; 3 cr.

45, (45). NEW HAMPSHIRE STATE PROGRAM OF STUDIES AND SCHOOL LAW. The aims and purposes, the plan of organization, and administration of the secondary school as outlined in the New Hampshire State Program of Studies and School Law. Mr. Koch and Mr. Bisbee. Open to Juniors and Seniors. Preparatory for state examinations in secondary program and in school law. 2 rec.; 2 cr.

51. SOCIAL BACKGROUNDS OF AMERICAN EDUCATION. The educationally significant aspects and needs of modern democratic society. Mr. Stowe. Prereq.: Open to Juniors, Seniors, and Graduate students. 3 rec.; 3 cr.

(52), 52. PRINCIPLES OF AMERICAN SECONDARY EDUCATION. The development and place of the secondary school in the American system of education; aims and functions of secondary education in our democracy; upward and downward extension of secondary education; articulation with lower and higher educational institutions, and with the community; the secondary school pupil; adjustment of the work of the school to meet individual needs; the offerings, both curricular and extra-curricular, of the secondary school; place and relationships of school board, superintendent, headmaster, and teachers. Mr. Stowe. Prereq.: Open to Juniors, Seniors, and Graduate Students. 3 rec.; 3 cr.

61, (61). PRINCIPLES AND PROBLEMS OF TEACHING IN THE SECONDARY SCHOOL. (1) Secondary-school objectives and the objectives in the teaching of secondary-school subjects; (2) principles of teaching and of directing learning incorporated in teaching which meets the needs of high-school students and attains the objectives of the secondary school; (3) secondary-school tests and the ways in which teachers are endeavoring to ascertain the extent to which their objectives are being attained; (4) class management, the purpose of which is to insure conditions favorable to the attainment of the objectives of the secondary school. Mr. Koch. Prereq.: Ed. 42. 3 rec.; 1 two-hour lab.; 4 cr.

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65. EDUCATIONAL TESTS AND MEASUREMENTS. The nature of measurement. Classification and evaluation of tests. Standardized tests in subject-matter fields. The construction of tests in classroom practice. Diagnosis and prognosis of pupils' aptitudes, achievements, attitudes, and interests in the public-school program with particular emphasis upon the role of tests. Mr. Carroll. Prereq.: Psych. 1. 3 rec.; 3 cr.

75. CHARACTER EDUCATION IN THE SCHOOLS. Environmental factors which exert an important influence upon pupils of adolescent and pre-adolescent age; the development of wholesome ideals, attitudes, habits, personality and character traits; direct and indirect methods of character development through school subjects, co-curricular and extra-curricular activities. Mr. Bisbee. Open to Seniors and Graduate students who have satisfactorily completed Ed. 42. 2 rec.; 2 cr.

76. PHILOSOPHY OF EDUCATION. A study of current educational objectives and practices and the philosophical foundations upon which they are based. Mr. Koch. Prereq.: Ed. 42, 51-52. 3 rec.; 3 cr.

89. MENTAL HYGIENE FOR TEACHERS. A study of the fundamental needs of human beings, with special emphasis on the mental and emotional conflicts of secondary-school students arising from the thwarting of these needs. Ways of recognizing these conflicts by their manifestations, and of helping students to resolve them will be treated extensively in the course. Attention will also be given to the mental hazards of the teaching profession. Mr. Stowe. Prereq.: General course in Psychology. Not open to students who have completed Psych. 47 or 81. 3 rec.; 3 cr.

COURSES PRIMARILY FOR GRADUATE STUDENTS

102. PUBLIC SCHOOL ADMINISTRATION. This course is intended for Graduate Students who have had teaching or administrative experience and are looking forward to further work as superintendent, principal, or department head. The course will consider the practical applications of approved practices and modern methods of administration in medium-sized school systems. The following selected topics illustrate the nature of the course: Purposes of School Administration; Personal Qualities Essential for Success; Public Relations; Business Aspects; Finance; Program and Curricula Making; Essential Records and Reports; Care of School Property; Teachers' Meetings; Selecting Teachers; and Some Unsolved Problems of Administration. Prereq. 3 rec.; 3 cr.

111-112. WORKSHOP IN ADMINISTRATION IN THE JUNIOR AND SENIOR HIGH SCHOOLS. This course will be devoted to a study of basic princi-

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ples of Educational Administration with their application to the following types of problems in the junior and senior high schools: The internal organization of the school, administering the program of studies, direction of extra-curricular activities, organization and direction of guidance, making the school schedule, selection of the staff, discipline and control, buildings and grounds, equipment and supplies, office organization, records and reports, administering finance, public relations and publicity. The course will be so organized as to permit students to specialize on problems of administration in the junior high school as well as in the senior high schools. As the workshop technique of discussing practical problems will be utilized in the course, it is hoped that members of the group will bring problems for further discussion and study. Designed for individuals preparing for positions as principals and headmasters. Mr. Koch. 6 cr.

114. WORKSHOP IN SECONDARY-SCHOOL CURRICULUM DEVELOPMENT. 3 cr.

117. WORKSHOP IN MATERIALS OF GUIDANCE. 3 cr.

118. WORKSHOP IN PROBLEMS OF ORGANIZATION AND ADMINISTRATION OF GUIDANCE. 3 cr.

122. PROBLEMS IN THE SUPERVISION OF HIGH SCHOOL TEACHING. This course is designed to be of service to supervising classroom teachers, headmasters, and superintendents. It will be devoted to the consideration of the meaning of supervision, its organization, and methods and techniques for evaluating and improving instruction in secondary school. 3 cr.

131-132. RESEARCH PROBLEMS IN SECONDARY EDUCATION. 2-6 cr.

COURSES IN PROBLEMS IN THE TEACHING OF HIGH-SCHOOL SUBJECTS

*The following courses are devoted to a study of problems of objectives, selection and organization of subject matter, teaching and testing techniques, and classroom management in the teaching of the respective subjects. To be admitted into one of these courses the student must have completed, with a grade of at least C, Ed. 61† and, in addition, the courses in the subject and related subjects designated as prerequisites to the respective courses in this group. A student desiring to be considered for Supervised Teaching must complete with a grade of at least C one of these courses in the subject in which he

*For details concerning prerequisites and nature of these courses, see descriptions given under respective subject-matter departments.

†Except for Art-Ed. 91, Art-Ed. 92, and Home Ec.-Ed. 91.

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hopes to do supervised teaching. The satisfactory completion of two of these courses is required of students completing the University Teacher Preparation Program.

AGRICULTURE-EDUCATION (AG-Ed) 92. PROBLEMS IN THE TEACHING OF HIGH-SCHOOL AGRICULTURE. Mr. Little. Open only to Seniors in Agricultural Teacher Preparation. 3 lec.; 3 cr.

ART-EDUCATION (ART-Ed) 91. PROBLEMS OF TEACHING ART IN ELEMENTARY SCHOOLS. (3 cr.) Mr. Thomas.

ART-EDUCATION (ART-Ed) 92. PROBLEMS OF TEACHING ART IN SECONDARY SCHOOLS. (3 cr.) Mr. Thomas.

BIOLOGY-EDUCATION (BI-Ed) 91. PROBLEMS IN THE TEACHING OF HIGH-SCHOOL BIOLOGY. (3 cr.) Mr. Schaefer.

ENGLISH-EDUCATION (ENG-Ed) 91. PROBLEMS IN THE TEACHING OF HIGH-SCHOOL ENGLISH. (3 cr.)

GENERAL SCIENCE-EDUCATION (GS-Ed) 91. PROBLEMS IN THE TEACHING OF GENERAL SCIENCE. (3 cr.) Mr. Leavitt.

HISTORY-EDUCATION (HIST-Ed) 91. PROBLEMS IN THE TEACHING OF HIGH-SCHOOL HISTORY. (3 cr.) Mr. Berg.

HOME ECONOMICS-EDUCATION (HE-Ed) 91. PROBLEMS IN THE TEACHING OF HIGH-SCHOOL HOME ECONOMICS. (3 cr.) Mrs. McLaughlin.

LANGUAGE-EDUCATION (LANG-Ed) 91. PROBLEMS IN THE TEACHING OF FOREIGN LANGUAGES IN THE HIGH SCHOOL. (3 cr.) Mr. Parker.

LATIN-EDUCATION (LAT-Ed) 91, 92. PROBLEMS IN THE TEACHING OF HIGH SCHOOL LATIN. (3 cr.) Mr. Walsh.

MATHEMATICS-EDUCATION (MATH-Ed) 91. PROBLEMS IN THE TEACHING OF HIGH-SCHOOL MATHEMATICS. (3 cr.) Mr. Perkins.

PHYSICAL EDUCATION (P-E) 91. PROBLEMS IN THE TEACHING OF PHYSICAL EDUCATION FOR WOMEN. (4 cr.) Miss Beckwith.

PSYCHOLOGY-EDUCATION (PSY-Ed) 91. PROBLEMS IN THE TEACHING OF HIGH-SCHOOL PSYCHOLOGY. (3 cr.) Mr. Stowe.

COURSES IN SUPERVISED TEACHING

This work is required in the Teacher Preparation Program. It is open only to students whose applications are approved by the Head of the Department of Education and the Supervisor of Student Teaching in the subject or subjects in which the applicant desires to do

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supervised teaching. Applications should be filed in the office of the Department of Education, on or before November 15 of the academic year in which the supervised teaching is to be done. No applications will be considered unless the applicant has completed with a grade of at least C the following courses in Education: 42, 51, 52, and 61, and, with an average grade of C or better, at least 18 semester credits in the subject-matter field in which he desires to teach under supervision. The applicant must also complete with a grade of at least C a course in the problems of teaching the subject in which he desires to do supervised teaching.

Students may be enrolled for from 6 to 12 credits of work in Supervised Teaching in the second semester of the academic year. Students registered in the College of Liberal Arts may count no more than 12 semester credits in Supervised Teaching toward the fulfillment of the major requirements in Education.

EDUCATION-AGRICULTURE (ED.-AG.) 93. SUPERVISED TEACHING IN HIGH-SCHOOL AGRICULTURE. Prereq.: Senior standing in Ag-Ed Curriculum.

EDUCATION-ART (ED.-ART) 94. SUPERVISED TEACHING IN SECONDARY-SCHOOL ART. Prereq.: ART-Ed 92.

EDUCATION-BIOLOGY (ED.-BI) 93, 94. SUPERVISED TEACHING IN HIGH-SCHOOL BIOLOGY. Prereq.: BI-Ed 91.

EDUCATION-COMMERCE (ED.-CS) 94. SUPERVISED TEACHING IN HIGH-SCHOOL COMMERCIAL SUBJECTS.

EDUCATION-ECONOMICS (ED.-ECON) 94. SUPERVISED TEACHING IN HIGH-SCHOOL ECONOMICS. Prereq.: HIST-Ed 91.

EDUCATION-ENGLISH (ED.-ENG) 94. SUPERVISED TEACHING IN HIGH-SCHOOL ENGLISH. Prereq. ENG-Ed 91.

EDUCATION-FRENCH (ED.-FR) 94. SUPERVISED TEACHING IN HIGH-SCHOOL FRENCH. Prereq.: LANG-Ed 91.

EDUCATION-GENERAL SCIENCE (ED.-GS) 94. SUPERVISED TEACHING IN GENERAL SCIENCE. Prereq.: GS-Ed 91.

EDUCATION-HISTORY. (ED.-HIST) 94. SUPERVISED TEACHING IN HIGH-SCHOOL HISTORY. Prereq.: HIST-Ed 91.

EDUCATION-HOME ECONOMICS (ED.-HE) 94. SUPERVISED TEACHING IN HIGH-SCHOOL HOME ECONOMICS. Prereq.: HE-Ed 91.

EDUCATION-LATIN (ED.-LAT) 94. SUPERVISED TEACHING IN HIGH-SCHOOL LATIN.

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EDUCATION-MATHEMATICS (ED-MATH) 94. SUPERVISED TEACHING IN HIGH-SCHOOL MATHEMATICS. Prereq.: MATH-Ed 91.

EDUCATION-PHYSICAL EDUCATION (ED-PE) 93, (93). DIRECTED TEACHING IN PHYSICAL EDUCATION.

EDUCATION-PHYSICAL EDUCATION (ED-PE) 94. SUPERVISED TEACHING OF PHYSICAL EDUCATION IN THE FIELD.

EDUCATION-SOCIOLOGY (ED-Soc) 94. SUPERVISED TEACHING IN HIGH-SCHOOL SOCIOLOGY. Prereq: HIST-Ed 91.

ELECTRICAL ENGINEERING

LEON W. HITCHCOCK, *Professor*; WILLIAM B. NULSEN, *Associate Professor*; JAMES C. MACE, *Associate Professor*.

1-2. ELECTRICAL ENGINEERING. Elementary electrical circuits and machinery. Prereq.: Math. 6. Required of Sophomores in E.E. E.E. 1: 2 rec.; 1 lab.; 3 cr. E.E. 2: 3 rec.; 1 lab.; 4 cr.

7. ELECTRONICS AND COMMUNICATION. Principles of electronic apparatus; vacuum tube amplifiers, gaseous triodes, photo-electric cells and their application in electrical communication and in industry. Mr. Mace. Prereq.: E.E. 33, 38, or 54. Required of Seniors in E.E. 2 rec.; 1 lab.; 3 cr.

12. ILLUMINATION. Photometry, light sources, lighting applications, wiring methods, and National Electrical Code Rules. Mr. Nulsen. Required of Seniors in E.E. Elective for students who have completed E.E. 33, or 38. 2 rec.; 2 cr.

13. ELECTRICAL PROBLEMS. Problems involving magnetic circuits, direct and alternating current circuits and machinery, batteries and meters. Mr. Hitchcock and Mr. Nulsen. Required of Juniors in E.E. 2 rec.; 2 cr.

14. ELECTRONIC TUBES. Fundamental principles of electronics, including a study of diodes, triodes, tetrodes, pentodes and gas tubes. Mr. Mace. Required of Juniors in E.E. 2 rec.; 1 lab.; 3 cr.

15, 16, 17, 18. STUDENT BRANCH OF THE AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS. A student organization conducted in accordance with the by-laws of the Institute with meetings given a place on the student's class schedule. Each student is required to present and discuss an approved subject. At times the meeting may take the form of a debate, an address by an outside lecturer, or a motion picture of an instructive nature. Students in this course must become student

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members of the A.I.E.E. and must subscribe to a magazine selected by the Department. Required of Juniors and Seniors in E.E. 1 rec.; no cr.

19, 20. **THESIS.** An original investigation offering opportunity for a better understanding of the fundamental principles and theory underlying Electrical Engineering practice and the design and operation of electrical equipment. Apparatus constructed as a part of a thesis becomes the property of the Department. A statement of progress must be submitted at the conclusion of each scheduled period. A thesis may be discontinued at any time if there appears to be a lack of interest or ability, or for failure on the part of the student to report at the periods scheduled. Staff members. Elective for Seniors in E.E. 3-5 lab.; 3-5 cr.

23-24. **LABORATORY.** Operation and test of direct and alternating current equipment; laboratory practice and report presentation. Mr. Nulsen. Prereq.: E.E. 2. Required of Juniors in E.E. 1 lab.; 2 cr.

25. **LABORATORY.** A continuation of E.E. 24. Mr. Nulsen. Prereq.: E.E. 24. Required of Seniors in E.E. 2 lab.; 4 cr.

31. **CIRCUITS AND APPLIANCES.** National Electrical Code, wiring methods, fuses, circuit breakers, meters, motors, signal circuits, and telephones. Mr. Hitchcock. Prereq.: Hotel Administration 21, 22 or Phys. 2. 2 rec.; 1 lab.; 3 cr.

33, (33). **FUNDAMENTALS OF ELECTRICITY.** Direct and alternating current circuits, machines, and equipment. Mr. Hitchcock and Mr. Nulsen. Prereq.: Phys. 8. Required of Juniors in C.E. and Seniors in Chem. E. 3 rec.; 1 lab.; 4 cr.

37-38. **ELECTRICAL MACHINERY.** Direct and alternating current circuits, theory and characteristics of electric motors and generators, starting and control equipment. Mr. Nulsen and Mr. Hitchcock. Prereq.: Phys. 8. Required of Juniors in Mech. E. 3 rec.; 1 lab.; 4 cr.

42. **PRINCIPLES AND APPLICATIONS OF ELECTRON TUBES.** Vacuum tubes, vacuum tube amplifiers, gaseous triodes, photo-electric cells and their application in industry. Mr. Mace. Prereq.: E.E. 33, or 37. Elective for students not registered in the Electrical Engineering Curriculum. 3 rec.; or 2 rec. and 1 lab.; 3 cr.

53-54. **ELECTRICAL ENGINEERING.** Direct current generators, direct current motors, alternating current circuits, alternators and transformers. Mr. Hitchcock. Prereq.: Phys. 8, Math. 8 and E.E. 2. Required of Juniors in E.E. 3 rec.; 3 cr.

55. **ELECTRICAL ENGINEERING.** A continuation of E.E. 54. Induction motors, regulators, synchronous motors, converters and rectifiers,

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transmission line regulation, efficiency, insulation, lightning protection, sag and tension, etc. Mr. Hitchcock. Prereq.: E.E. 54. Required of Seniors in E.E. 3 rec.; 3 cr.

58. RADIO AND WIRE COMMUNICATION. Radio frequency amplifiers and oscillators and the principles of radiation. Principles of basic telephone apparatus and circuits. A detailed study of telephone transmission including inductive interference, equivalent networks, the infinite transmission line, the determination of line and cable characteristics, repeaters, filters, measurement of transmission characteristics. Mr. Mace. Prereq.: E.E. 7. Elective for Seniors in E.E. 3 rec.; 1 lab.; 4 cr.

60. ADVANCED CIRCUIT THEORY. Application of mathematics to the solution of electrical circuit problems, including the use of differential equations, Heaviside's operators, and derivation of fundamental formulas and constants. Mr. Nulsen. Prereq.: E.E. 55. Elective for Seniors in E.E. 3 rec.; 1 lab.; 4 cr.

76. LABORATORY. Advanced laboratory testing and special problems. The student works on problems of his own selection which have been outlined by him and have received approval. This may be in the form of a semester thesis, or a series of original experiments. Mr. Nulsen. Prereq.: E.E. 25. Elective for selected Seniors in E.E. 4 lab.; 4 cr.

78. ADVANCED ELECTRONICS LABORATORY. Special radio problems, electron tube applications of a research nature, or studies and applications of audio frequency amplifier systems. Mr. Mace. Prereq.: E.E. 7. Elective for Technology Seniors with permission of the Department. Lab. and conferences; 4 cr.

ENGLISH

SYLVESTER H. BINGHAM, *Associate Professor*; ALFRED E. RICHARDS, *Professor Emeritus*; HAROLD H. SCUDDER, *Professor*; WILLIAM G. HENNESSY, *Professor*; LUCINDA P. SMITH, *Associate Professor Emeritus*; CARROLL S. TOWLE, *Associate Professor*; EDMUND A. CORTÉZ, *Associate Professor of Speech*; ROBERT G. WEBSTER, *Assistant Professor*; G. HARRIS DAGGETT, *Assistant Professor*; J. DONALD BATCHELLER, *Assistant Professor of Speech*; JOHN H. SCHULTZ, *Assistant Professor*; JOHN G. RIDEOUT, *Assistant Professor*; JOHN C. RICHARDSON, *Instructor*; LEWIS C. GOFFE, *Instructor*; F. VERNON GETTY, *Instructor*; FRANGCON L. JONES, and RUTH E. WINN, *Graduate Assistants*.

ENGLISH

REMEDIAL COURSES

*A. REMEDIAL WORK IN WRITING. Required of all students whose attainments in this subject are found to be unsatisfactory. Assignment to classes from which the students may be excused either at mid-semester or at the end of the year. 3 rec.; no credit. (Formerly Eng. 1.)

B. REMEDIAL WORK IN SPEECH. See the section headed *Speech*.

*C. REMEDIAL WORK IN READING. Intensive drill in reading skills for six weeks. Offered twice each semester. 3 rec.; no credit. Mr. Webster. (Formerly Eng. 1.)

COURSES IN ENGLISH

1-2. FRESHMAN ENGLISH. The training of students to write correctly and with force and to read with appreciation and discernment the chief types of literature. The entire staff of the Department. 3 rec.; 3 cr.

12. THE BIBLE AS LITERATURE. A study of the various literary types found in the Bible and a survey of the influence of the Bible on English literature. Mr. Richards. For Sophomores, Juniors, and Seniors. 3 lec.; 3 cr. (Given in alternate years; not offered in 1946-1947.) (Formerly Eng. 28.)

13, 14. AN INTRODUCTION TO ENGLISH LITERATURE. The development of English literature from its beginnings to the twentieth century by means of selected readings. Mr. Webster and other members of staff. For Sophomores, Juniors, and Seniors. (Not recommended for English majors. Will not count for major credits.) 3 rec.; 3 cr. (Formerly Eng. 3, 4.)

15, 16. SURVEY OF AMERICAN LITERATURE. Mr. Scudder. For Sophomores, Juniors, and Seniors. 3 rec.; 3 cr. (Formerly Eng. 11, 12.)

22. WRITING FOR THE NEWSPAPER. Mr. Webster. For Sophomores, Juniors, and Seniors. 3 rec.; 3 cr. (Formerly Eng. 9, 10.)

23, (23). WRITING OF TECHNICAL REPORTS. Mr. Webster. Required of Seniors in Agriculture and in Mechanical, Electrical, and Civil Engineering, and Building Construction. 1 rec.; 1 lec.; 2 cr. (Formerly Eng. 41.)

*Any student may be recalled and reassigned to an instruction group at any time in his four years in college upon report of any member of the Faculty that his work in composition or in reading is deficient.

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25-26. ADVANCED COMPOSITION. Practice with compositions of varying lengths. Class discussions with illustrative readings. Weekly conferences. Mr. Towle. For Sophomores, Juniors, and Seniors. Prereq.: Eng. 1-2. 3 lec. or rec.; 3 cr. (Formerly Eng. 7, 8.)

27. ENGLISH GRAMMAR. 3 rec.; 3 cr. (Formerly Eng. 19.)

43, 44. READING FOR THOUGHT. Analysis of the thought and structure of three forms of writing: exposition, description, and narration. Mr. Bingham. For Sophomores, Juniors, and Seniors. 3 rec.; 3 cr.

53, 54. WRITING AS AN ART. The study and practice of forms of writing, together with an examination of the history of literary philosophy. Practice in mutual criticism through class workshop discussions and written comment. Freedom in selection and pursuance of writing interests. Individual conferences. Mr. Towle. For Juniors, Seniors, and Graduate Students. Prereq.: Eng. 25 or its equivalent. 2 lec.; 1 rec.; 3 cr. (Given in alternate years; not offered in 1946-1947.) (Formerly Eng. 65, 66.)

Great Figure Group

55, 56. CHAUCER. Mr. Richards. For Juniors, Seniors, and Graduate Students. 3 rec.; 3 cr. (Formerly Eng. 67-68.)

*57, 58. SHAKESPEARE'S PLAYS. The major histories, comedies, and tragedies. Mr. Hennessy. For Juniors, Seniors, and Graduate Students. 3 lec.; 3 cr. (Formerly Eng. 53, 54.)

59. MILTON. The minor poetry and the *Paradise Lost*. For Juniors, Seniors, and Graduate Students. 3 lec.; 3 cr. (Given in alternate years; offered in 1946-1947.) (Formerly Eng. 55.)

60. BOSWELL'S JOHNSON. For Juniors, Seniors, and Graduate Students. 3 lec.; 3 cr. (Given in alternate years; offered in 1946-1947.) (Formerly Eng. 56.)

61. WORDSWORTH. For Juniors, Seniors, and Graduate Students. 3 lec.; 3 cr. (Given in alternate years; offered in 1946-1947.)

62. BROWNING. Mr. Daggett. For Juniors, Seniors, and Graduate Students. 3 lec.; 3 cr. (Given in alternate years; not offered in 1946-1947.)

The Century or Period Group

63, 64. ENGLISH LITERATURE IN THE SIXTEENTH CENTURY. For

*English 57, 58 is a required course for English majors and may not be used in fulfillment of the requirement of one semester in the Great Figure group.

ENGLISH

Juniors, Seniors, and Graduate Students. 3 lec.; 3 cr. (Given in alternate years; not offered in 1946-1947.)

65, 66. ENGLISH LITERATURE IN THE SEVENTEENTH CENTURY. Mr. Towle. For Juniors, Seniors, and Graduate Students. 3 lec.; 3 cr. (Given in alternate years; offered in 1946-1947.) (Formerly Eng. 17, 18.)

67, 68. ENGLISH LITERATURE IN THE EIGHTEENTH CENTURY. Mr. Bingham. For Juniors, Seniors, and Graduate Students. 3 lec.; 3 cr. (Given in alternate years; not offered in 1946-1947.)

69, 70. THE ENGLISH ROMANTIC PERIOD. Wordsworth, Coleridge, Lamb; Byron, Shelley, Keats, Hazlitt, DeQuincy. Mr. Daggett. 3 lec.; 3 cr. (Given in alternate years; not offered in 1946-1947.) (Formerly Eng. 61, 62.)

71, 72. VICTORIAN PROSE AND POETRY. Major non-fictional prose from Carlyle to Stevenson and major poetry from Tennyson to Hardy. Mr. Hennessy. For Juniors, Seniors, and Graduate Students. 3 lec.; 3 cr. (Given in alternate years; offered in 1946-1947.)

73, 74. BRITISH LITERATURE OF THE TWENTIETH CENTURY. Mr. Daggett. For Juniors, Seniors, and Graduate Students. 3 lec.; 3 cr. (Given in alternate years; offered in 1946-1947.)

The Advanced American Literature Group

75. NEW ENGLAND RENAISSANCE. Emerson, Thoreau, and other transcendentalists. Mr. Scudder. For Juniors, Seniors, and Graduate Students. 3 lec.; 3 cr. (Given in alternate years; offered in 1946-1947.) (Formerly Eng. 63, 64.)

76. AMERICAN NOVEL IN THE NINETEENTH CENTURY. Mr. Scudder. For Juniors, Seniors, and Graduate Students. 3 lec.; 3 cr. (Given in alternate years; not offered in 1946-1947.) (Formerly Eng. 63, 64.)

77. AMERICAN POETRY OF THE NINETEENTH CENTURY. Mr. Scudder. For Juniors, Seniors, and Graduate Students. 3 lec.; 3 cr. (Given in alternate years; not offered in 1946-1947.) (Formerly Eng. 63, 64.)

78. AMERICAN HUMOR. Mr. Scudder. For Juniors, Seniors, and Graduate Students. 3 lec.; 3 cr. (Given in alternate years; offered in 1946-1947.) (Formerly Eng. 63, 64.)

79, 80. AMERICAN LITERATURE OF THE TWENTIETH CENTURY. Mr. Towle. For Juniors, Seniors, and Graduate Students. 3 lec.; 3 cr. (Given in alternate years; not offered in 1946-1947.)

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The Type Group

81, 82. INTRODUCTION TO ENGLISH DRAMA. The development of English drama, exclusive of Shakespeare, from the Middle Ages to the present. Mr. Hennessy. For Juniors, Seniors, and Graduate Students. 3 lec.; 3 cr. (Given in alternate years; not offered in 1946-1947.)

83, 84. THE ENGLISH NOVEL OF THE EIGHTEENTH AND NINETEENTH CENTURIES. Mr. Bingham. For Juniors, Seniors, and Graduate Students. 3 lec.; 3 cr. (Formerly Eng. 57, 59.)

*85, 86. A SURVEY OF ENGLISH AND AMERICAN LITERATURE. The Department, under the direction of the Chairman. For Seniors and Graduate Students. 3 lec.; 3 cr.

91. ENGLISH-EDUCATION. PROBLEMS IN THE TEACHING OF HIGH SCHOOL ENGLISH. Principles and methods of teaching English literature and composition in secondary schools. Prereq.: three years of English courses approved by the Head of the Department, and a demonstration of proficiency in English grammar, either by the satisfactory completion of Eng. 27, or by examination. For all students who plan to teach English in secondary schools and for students majoring in Language, History, or Education. 3 lec. or rec.; 3 cr.

COURSES PRIMARILY FOR GRADUATE STUDENTS

A student taking a course primarily for Graduate Students must register for the graduate course and pass, in partial fulfillment, with a grade of B or better, the corresponding 51-90 undergraduate course; at the same time, he must do additional work assigned by his instructor and prepare a paper on an agreed subject connected with his study. An account of the additional work must be turned in to the Chairman of the Department no later than two weeks after the commencement of the course, and the paper must be in the hands of the Chairman at least two weeks before the end of the course. A student may not register for a graduate course if he has previously taken the corresponding undergraduate course.

155, 156. CHAUCER. 3 lec.; 3 cr.

157, 158. SHAKESPEARE. 3 lec.; 3 cr.

159. MILTON. 3 lec.; 3 cr. (Given in alternate years; offered in 1946-1947.)

**This course does not carry major credit and cannot be counted toward the master's degree.*

ENGLISH

160. BOSWELL'S JOHNSON. 3 lec.; 3 cr. (Given in alternate years; not offered in 1946-1947.)

161. WORDSWORTH. 3 lec.; 3 cr. (Given in alternate years; offered in 1946-1947.)

162. BROWNING. 3 lec.; 3 cr. (Given in alternate years; not offered in 1946-1947.)

163, 164. ENGLISH LITERATURE IN THE SIXTEENTH CENTURY. 3 lec.; 3 cr. (Given in alternate years; not offered in 1946-1947.)

165, 166. ENGLISH LITERATURE IN THE SEVENTEENTH CENTURY. 3 lec.; 3 cr. (Given in alternate years; offered in 1946-1947.)

167, 168. ENGLISH LITERATURE IN THE EIGHTEENTH CENTURY. 3 lec.; 3 cr. (Given in alternate years; not offered in 1946-1947.)

169, 170. THE ENGLISH ROMANCE PERIOD. 3 lec.; 3 cr. (Given in alternate years; not offered in 1946-1947.)

171, 172. VICTORIAN PROSE AND POETRY. 3 lec.; 3 cr. (Given in alternate years; offered in 1946-1947.)

173, 174. BRITISH LITERATURE OF THE TWENTIETH CENTURY. 3 lec.; 3 cr. (Given in alternate years; offered in 1946-1947.)

175. THE NEW ENGLAND RENAISSANCE. 3 lec.; 3 cr. (Given in alternate years; offered in 1946-1947.)

176. THE AMERICAN NOVEL IN THE NINETEENTH CENTURY. 3 lec.; 3 cr. (Given in alternate years; not offered in 1946-1947.)

177. AMERICAN POETRY OF THE NINETEENTH CENTURY. 3 lec.; 3 cr. (Given in alternate years; not offered in 1946-1947.)

178. AMERICAN HUMOR. 3 lec.; 3 cr. (Given in alternate years; offered in 1946-1947.)

179, 180. AMERICAN LITERATURE OF THE TWENTIETH CENTURY. 3 lec.; 3 cr. (Given in alternate years; not offered in 1946-1947.)

181, 182. AN INTRODUCTION TO ENGLISH DRAMA. 3 lec.; 3 cr. (Given in alternate years; not offered in 1946-1947.)

183, 184. THE ENGLISH NOVEL OF THE EIGHTEENTH AND NINETEENTH CENTURIES. 3 lec.; 3 cr.

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SPEECH

Mr. Cortez, *in charge.*

THE SPEECH CLINIC. For any member of the University who wishes to have his voice and speech examined and corrected.

***B. REMEDIAL WORK IN SPEECH.** Required of all students whose speech is found to be unsatisfactory. (Formerly Eng. 1.)

33, 34. DISCUSSION AND DEBATE. First semester: the proposition and its main issues, sources and tests of evidence, construction of the argumentative brief, laws of reasoning. Second semester: practice in discussion and debate, varsity debating, parliamentary procedure. For Sophomores, Juniors, and Seniors. Prereq.: Eng. 35 or its equivalent. 3 rec.; 3 cr. (Formerly Eng. 37, 38.)

35, (35). PUBLIC SPEAKING. The fundamental basic appeals and audience psychology; extemporaneous and impromptu speaking for every occasion. Mr. Cortez and Mr. Batcheller. For Sophomores, Juniors, and Seniors. 3 rec.; 3 cr.

36. SPEECH FOR TEACHERS. Constant practice in reading announcements, short stories, and selections of prose and verse. Emphasis upon oral interpretation. Prepared talks on methods of reading before the class. Mr. Cortez. Permission of the instructor. Recommended prereq.: Eng. 35 or 47. 3 rec.; 3 cr.

39. RADIO SPEAKING. Practice in the preparation and delivery of radio continuity, readings, skits, talks, and announcements; microphone technique. Mr. Cortez. For Sophomores, Juniors, and Seniors. Prereq.: permission of the instructor. 3 rec.; 3 cr.

47, 48. DRAMATICS WORKSHOP. First semester: the fundamentals of acting, stage direction, stage deportment, and the analysis, and development of roles in plays. Second semester: the methods of choosing, casting, and directing plays. Practical experience in productions. Mr. Batcheller. For Sophomores, Juniors, and Seniors. Prereq.: permission of the instructor. 1 rec.; 2 lab.; 3 cr.

ENTOMOLOGY

WALTER C. O'KANE, *Professor*; JAMES G. CONKLIN, *Associate Professor*;
ROBERT L. BLICKLE, *Assistant Professor.*

2. ELEMENTARY ENTOMOLOGY. An introduction to Entomology in its

**Any student may be recalled and reassigned to an instruction group at any time in his four years in college upon report of any member of the Faculty that his work in speech is deficient.*

ENTOMOLOGY

broad aspects. The structure, biology, and classification of insects. Each student is required to make an insect collection. Mr. Conklin. (Formerly given as Ent. 6.) 2 lec.; 1 lab.; 3 cr.

41. INSECTS OF ORCHARD AND GARDEN. Studies of the life histories and habits of important insect pests of orchard, garden, and certain field crops. Methods of control. Apparatus for applying insecticides. Mr. Conklin. 2 lec.; 1 lab.; 3 cr. (Given in alternate years; offered in 1946-1947.)

54. MEDICAL ENTOMOLOGY. Insects and arachnids in relation to public health. The more important disease carriers, their biologies, and means of control. Adapted especially for students interested in public health or medicine. Mr. Blickle. Elective for Juniors and Seniors. 2 lec.; 1 lab.; 3 cr.

55. HOUSEHOLD INSECTS, STORED PRODUCTS INSECTS. The problems of pest prevention and control in buildings. Pests of fabrics and clothing. Insects affecting foodstuffs. Termites and other insects attacking wooden structures. Mr. Conklin. 1 lec.; 1 lab.; 2 cr. (Given in alternate years; not offered in 1946-1947.)

56. FOREST INSECTS. Principles of Forest Entomology. Life histories and habits of the more destructive forest insects. Forest insect control. Adapted especially for forestry students. Mr. Conklin. Prereq.: Ent. 2. 1 lec.; 1 lab.; 2 cr.

57-58. ADVANCED ENTOMOLOGY. The anatomy and physiology of insects. Systematic Entomology. Mr. Conklin, Mr. Blickle. Open to others than Ent. majors by permission of the Head of Department. 2 lec.; 2 lab.; 4 cr.

59-60. ADVANCED ECONOMIC ENTOMOLOGY. Problems in applied Entomology. The literature of Economic Entomology. Investigational methods. Studies of the specialized phases of Entomology. Mr. Conklin, Mr. Blickle. Required of Ent. majors. Open to others than Ent. majors by permission of the Head of the Department. 1 to 3 cr.

COURSES PRIMARILY FOR GRADUATE STUDENTS

101, 102. GRADUATE ENTOMOLOGY. Mr. Conklin, Mr. Blickle. Hours and credits to be arranged.

103, 104. GRADUATE ENTOMOLOGY. Mr. Conklin, Mr. Blickle. Hours and credits to be arranged.

FINE ARTS

(See THE ARTS, page 176.)

UNIVERSITY OF NEW HAMPSHIRE

FORESTRY

CLARK L. STEVENS, *Professor*; LEWIS C. SWAIN, *Assistant Professor*.

1. MANAGEMENT OF FARM WOODLANDS. Forestry principles as applied to the orderly handling of farm woodlots. Mr. Swain. Elective for all students, except Forestry majors. 2 lec.; 1 lab.; 3 cr.

2, 3, 4, 5, 6, 7, 8. FORESTRY PRACTICE. Practical work in the University Forest, expected of all foresters. The student gains experience in various forestry operations, and progresses from laborer to supervisor. Mr. Stevens and others. 1 lab.; 1 cr.

21. FOREST ECOLOGY. Summer camp course.* Composition of the forest association; effect of environment on growth of stands; studies of forest vegetation. Mr. Stevens. Elective for all students. Forty hours per week for 8 weeks. 10 cr.

26. WOOD IDENTIFICATION. The uses of lumber; physical properties and identification of the commercially important woods. Mr. Swain. 2 lec.; 1 lab.; 3 cr.

27. ADVANCED MENSURATION. Problems and practice in the use of statistical measurements, and construction of alinement charts, log rules, yield tables, etc. Prereq.: Forestry 42. 2 lec.; 1 lab.; 3 cr.

29-30. SILVICULTURE. The art of producing and tending a forest. Seed collection, storage, and testing; nursery practice; forest plantations; natural regeneration, intermediate cuttings; silvicultural practice. Mr. Stevens. For foresters. Elective for others with approval of the instructor. 2 lec.; 1 lab.; 3 cr.

31, 32. FOREST UTILIZATION. Methods of logging and milling in the chief lumber-producing regions of the United States; forest products, their manufacture and marketing; with special problems of the lumber business. Mr. Swain. 2 lec.; 1 lab.; 3 cr.

33. FOREST PROTECTION. Protection of the forest from such enemies as fire, insects, fungi, trespass, and climatic extremes; also the construction of forest improvements associated with protection plans. Mr. Swain. Recommended for Juniors in Forestry. Elective for others with approval of the instructor. 2 lec.; 1 lab.; 3 cr.

34. FISH AND GAME MANAGEMENT. Designed to acquaint the student with the fundamental principles underlying the management of

*See description of Summer Camp, page 43.

FORESTRY

wild life as a forest crop. Mr. Stevens. For students in Game Management Group. Elective for others with approval of the instructor. 2 lec.; 1 lab.; 3 cr.

35-36. THESIS. Work to be arranged according to the needs of individual students. Mr. Stevens, Mr. Swain. Prereq.: Forestry 26, 28, and 29. 2 lec.; 2 or 3 cr.

37. FOREST RECREATION. Principles and methods for planning, designing, and administering public and semi-public forest recreational areas. Prereq.: Permission of the instructor. Recommended for Seniors in Forestry. 2 lec.; 1 lab.; 3 cr. (Not offered in 1946-1947.)

39-40. FOREST MANAGEMENT. Management of woodlots and large forest tracts for the purposes of gaining the largest immediate and future returns. Preparation of working plans to coördinate forest operations. Prereq.: Forestry 26; 27-28; 29-30; 42. 2 lec.; 2 lab.; 4 cr.

41. GAME MANAGEMENT FIELD PRACTICE. Summer Camp Course.* Field work on the University Forest at Passaconaway, N. H., and on a game management area of the White Mountain National Forest. Mr. Stevens and others. Prereq.: For students in Game Management Group. Elective for others by permission of the instructor. Forty hours per week for 8 weeks. 10 cr.

42. SUMMER CAMP.* Practice in forest mapping and surveying; measurement of forest products; timber estimating; and studies of growth and yield of the commercial tree species of New England. Mr. Stevens, Mr. Swain. Forty hours per week for 8 weeks. 10 cr.

52. HISTORY OF FORESTRY. The history of forestry; its development and present status in different countries. Prereq.: Permission of the instructor. 3 lec.; 3 cr. (Not offered in 1946-1947.)

53. ADVANCED GAME MANAGEMENT. Summer Camp Course.* Special problems in the management of fish and game. Open to advanced students or to those who show unusual promise in the field of research. Mr. Stevens and others. Prereq.: Permission of the instructor. Forty hours per week for 8 weeks. 10 cr.

FRENCH

(See LANGUAGES, pages 239-240.)

*See Camp description, page 43.

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GEOGRAPHY

(See page 221.)

GEOLOGY

T. RALPH MEYERS, *Associate Professor*; DONALD H. CHAPMAN, *Associate Professor*; GLENN W. STEWART, *Assistant Professor*.

GEOLOGY

1-2. PRINCIPLES OF GEOLOGY. The earth and its history. A consideration of land forms and a discussion of the materials and structures of the earth's crust. The interpretation of past geologic events, and their effect on the development of life forms. Messrs. Meyers, Chapman, and Stewart. 3 lec. or rec.; 1 lab.; 4 cr. *This course cannot be used to satisfy major requirements.*

7, (7). GENERAL GEOLOGY. A general introductory course in Physical Geology. The structures and materials of the earth's crust and the forces which have produced and altered them. Mr. Stewart. For students in Technology and Agriculture. Open to Liberal Arts students by permission only. 2 lec. or rec.; 2 cr.

31. PHYSIOGRAPHY. The forces producing the present aspect of the land surface, particularly that of New England. Special emphasis on the work of running water, glaciers, and marine agents. Field trips during the fall season. Mr. Chapman. Prereq.: Geol. 2 or Geog. 3. 3 lec. or rec.; 1 lab.; 4 cr. (Formerly Geol. 11.)

32. GLACIAL GEOLOGY. A study of the characteristics of existing glaciers and an interpretation of Pleistocene glacial features. The abundant and varied evidence of glaciation in northeastern North America and Baltic Europe will be emphasized. New Hampshire examples of both Alpine and continental glaciation will be studied in the field. Mr. Chapman. Prereq.: Geol. 31. 2 lec.; 1 lab.; 3 cr.

33. STRUCTURAL GEOLOGY. An advanced study of the structures of the earth's crust and of the dynamics of their formation. Mountain systems, metamorphism, igneous structures, and theories of earth origin. Mr. Stewart. Prereq.: One course in Geol. 3 lec. or rec.; 1 lab.; 4 cr. (Formerly Geol. 51-52.)

34. ELEMENTS OF PETROLOGY. A systematic study of rock types together with their modes of occurrence and problems of origin. Mr. Stewart. Prereq.: Geol. 1 or 7. 2 lec.; 1 lab.; 3 cr.

35-36. MINERALOGY. The minerals that make up the earth's crust: crystals; minerals and their determination by means of physical and

GEOLOGY

chemical characteristics; and the aggregation of minerals to form rocks. Mr. Meyers. Prereq.: One course in Geol. or one course in Chem. 2 lec. or rec.; 1 lab.; 3 cr.

53, 54. ECONOMIC GEOLOGY. First semester: the types of coal and their occurrence in the United States; petroleum, the structures in which it is found, and the distribution and geology of oil fields, especially in the United States; cement materials, building stones and related materials. Second semester: the metals, their ores, and the geology of important ore deposits. Mr. Meyers. Prereq.: One year's work in Geol. 3 lec. or rec.; 3 cr. (Given in alternate years; offered in 1946-1947.)

39-40. PALEONTOLOGY. The history, development, and morphology of the various groups of animals, and, to a lesser extent, plants, as recorded by fossils found in the rocks of the earth's crust. Mr. Stewart. Prereq.: One year's work in Geol. or Zoöl. 2 lec. or rec.; 1 lab.; 3 cr. (Given in alternate years; not offered in 1946-1947.)

57, (57). GEOLOGIC PROBLEMS. Special problems by means of conferences, assigned readings, and field work, fitted to individual needs. Messrs. Meyers, Chapman, and Stewart. Prereq.: Permission of the instructor. 1-5 cr. This course may be taken more than once.

GEOGRAPHY

Register for these courses as Geog. 1, etc.

Geog. 1, 2 cannot be used to satisfy Science requirements, nor major requirements. Geog. 3 and Geog. 10 cannot be used to satisfy Science requirements.

1, 2. GEOGRAPHY OF THE WESTERN AND EASTERN HEMISPHERES. A general survey of the geography of the earth, with emphasis upon its physical aspects. First semester: Western Hemisphere. Second semester: Eastern Hemisphere. Mr. Chapman. 2 lec. or rec.; 2 cr.

3. PHYSICAL GEOGRAPHY. A study of the physical elements of Geography and their relationship to man. Mr. Chapman. 3 lec. or rec.; 3 cr.

4. ECONOMIC GEOGRAPHY. The resources of the continents and the relationship of these with the principal activities of man. A study of fishing, agriculture, mining, industry, transportation and commerce is included. With Geog. 3, this course completes a year's basic work in Geography. Open to all students. Miss Woodruff. 3 lec. or rec.; 3 cr. (Formerly Economics 4.)

5. POLITICAL GEOGRAPHY. A study of the geographic foundations

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of the state, of the influence of geography on the political organization of the world in war and peace. Special emphasis on recent schools of thought, such as German geopolitics, British, French, and American political geography. Prereq.: A college course in geography or permission of the instructor. For Sophomores, Juniors, and Seniors. 3 lec. or rec.; 3 cr.

10. GEOGRAPHY OF NORTH AMERICA. The North American continent and its physical aspects. The weather and climate of the continent. The countries, treated regionally. Intensive study of the physical geography of New England. Mr. Chapman. For Sophomores, Juniors, and Seniors. 3 lec. or rec.; 3 cr.

METEOROLOGY

Register for these courses as Met. 1, etc.

Met. 1, 2 cannot be used to satisfy Science requirements, nor major requirements. Met. 25 cannot be used to satisfy Science requirements.

1. THE WEATHER. The interpretation of atmospheric phenomena; the heating and circulation of the atmospheres and of the nature and movement of the air masses which influence the weather of North America and particularly New England. Mr. Chapman. 2 lec. or rec.; 2 cr.

2. CLIMATES OF THE WORLD. Classification of climates of the world. Examples and brief descriptions of major climatic types, and their influence on the life of man. Mr. Chapman. 2 lec. or rec.; 2 cr.

25. METEOROLOGICAL OBSERVATIONS. Prompt and accurate determination of weather conditions, current methods of coding and transmission of weather data, and the care of weather instruments and records will be emphasized. Mr. Meyers. 2 lec. or rec.; 2 cr.

26. WEATHER MAP PLOTTING. A training course, using modern methods, for the plotting and interpretation of observational data used in the preparation of weather maps. Mr. Chapman. Prereq.: A course in Meteorology. 2 lec. or lab.; 2 cr.

57, (57). METEOROLOGICAL PROBLEMS. Special problems by means of conferences, assigned readings, and laboratory work, fitted to individual needs. Mr. Chapman. Prereq.: Permission of the instructor. 1-5 cr. *This course may be taken more than once.*

GERMAN

(See LANGUAGES, page 241.)

GOVERNMENT

GOVERNMENT

NORMAN ALEXANDER, *Professor*; LASHLEY G. HARVEY, *Assistant Professor*.

1, (1). FOUNDATIONS OF AMERICAN GOVERNMENT. A study of the nature and growth of the political institutions of the American people. A brief comparison of our political institutions with those of other present-day systems of government. The fundamentals of American government, popular control, lawmaking, and the administration of public affairs with frequent reference to current political development. Mr. Alexander, Mr. Harvey. Open to all students. 3 lec. or rec.; 3 cr. (Formerly Govt. 3.)

2. PROBLEMS OF AMERICAN GOVERNMENT. This course aims to acquaint the student with the principal problems and public policies of the American Government at its various levels—national, state, and local. Mr. Alexander, Mr. Harvey. Open to students who have had Govt. 1. (Formerly Govt. 4.) 3 lec. or rec.; 3 cr.

4. AMERICA IN WORLD AFFAIRS. An intensive study of the major factors influencing international relations and America's position in the world of today. Special emphasis on the emergence of the United States as a world power, and on the development of U. S. foreign policy throughout World Wars I and II. Open to all students. 3 lec. or rec.; 3 cr. (Formerly Govt. 2.)

7. EUROPEAN GOVERNMENTS. A comparative study of the chief governments of Europe, of their recent problems and political development. Special attention is given to the governments of Great Britain, Soviet Russia, and Germany, and to differences in the procedures and principles of the democracies, and of the totalitarian governments. Open to Sophomores, Juniors, and Seniors. 3 lec. or rec.; 3 cr. (Formerly Govt. 5.)

8. GOVERNMENTS OF THE FAR EAST. A detailed survey of the recent governmental problems and political development of China, Japan, Siberia, India, the Dutch East Indies and other portions of Eastern Asia. Open to Sophomores, Juniors, and Seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; offered in 1946-1947.)

10. LATIN AMERICAN GOVERNMENTS. A detailed survey of the recent governmental problems and political development of Mexico, Central America, and the South American countries, treated regionally. Open to Sophomores, Juniors, and Seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; not offered in 1946-1947.)

13. MUNICIPAL GOVERNMENT AND ADMINISTRATION. This course

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introduces the student to the organization, powers, and functions of municipal corporations. Special attention will be given to the different types of municipal government and the problems of administration, such as: finance, budgeting, personnel, police, welfare, utilities, and planning. Mr. Harvey. Prereq.: Govt. 1. 3 lec. or rec.; 3 cr.

15. **POLITICS AND PRESSURE GROUPS.** A study of the fundamental problems of popular control of government. The history, programs, and functions of political parties. Major pressure groups, their organization, methods, and objectives. Party finance, nomination procedures and elections, machines and bosses, political campaigns, problems of public control, and the current political situation. Mr. Alexander. Prereq.: Govt. 1, or by permission of the instructor. 3 lec. or rec.; 3 cr.

16. **PUBLIC OPINION AND PROPAGANDA.** An analysis of public opinion and of the opinion-forming process. Propaganda techniques and methods; the measurement of public opinion; the influence of the press and of the radio. Problems in the relationship of government to public opinion. Mr. Alexander. Open to Sophomores, Juniors, and Seniors. 3 lec. or rec.; 3 cr.

51-52. **CONSTITUTIONAL LAW.** A case study of the American Constitution, stressing the powers of Congress and the President, limitations upon state legislation, and the nature of the judicial process. Consideration is given to the economic and social aspects of constitutional law principles. Mr. Alexander. Open to Juniors and Seniors who have had Govt. 1, 2. 3 lec. or rec.; 3 cr.

53. **INTERNATIONAL LAW.** The rules governing the conduct of nations, states; national and international jurisdiction; pacific relations of states; relations of belligerent states; rights and duties of neutrals. Open to Juniors and Seniors. 3 lec. or rec.; 3 cr.

55. **WORLD POLITICS.** A survey of the various forces and major factors influencing the development of modern international politics. The importance of geography, economics, militarism, and modern scientific inventions in shaping world politics. Diplomacy of war and peace, large powers against small nations, the balance of power, postwar problems and international planning. Open to Juniors and Seniors. 3 lec. or rec.; 3 cr.

56. **INTERNATIONAL ORGANIZATION.** A detailed study of existing organizations and plans for co-operation, including the analysis of United Nations as a new world organization, and a comparison with the League of Nations. Special attention is given to a discussion of the various plans for global co-operation in the postwar era. Open to Juniors and Seniors. 3 lec. or rec.; 3 cr.

GOVERNMENT

57. PRINCIPLES OF PUBLIC ADMINISTRATION. A study of the principles of administrative organization; problems of management, personnel, budgetary and fiscal control, administrative powers and responsibility. Mr. Harvey. Open to Juniors and Seniors, who have had Govt. 1, Foundations of American Government, or Govt. 3. (Given in alternate years; not offered in 1946-1947.) 3 lec. or rec.; 3 cr.

58. PUBLIC PERSONNEL ADMINISTRATION. Types of organization, methods and policies for administering public personnel in the modern state. Mr. Harvey. Open to Juniors and Seniors who have had Govt. 1, Foundations of American Government, or Govt. 3. 3 lec. or rec.; 3 cr. (Given in alternate years; not offered in 1946-1947.)

63. HISTORY OF POLITICAL THOUGHT. A historical survey of the principal political theories from Plato and Aristotle to the present. The course is also designed to introduce the student to those movements of political thought which lie as the basis of modern theories of government, *e.g.*, liberalism, socialism, fascism, democracy. Mr. Harvey. Open to Juniors and Seniors. (Given in alternate years; offered in 1946-1947.) 3 lec. or rec.; 3 cr.

64. AMERICAN POLITICAL THOUGHT. This course is a survey of American political thought from Revolutionary days to the present, with special emphasis on constitutionalism, federalism, centralization, collectivism, and recent theories supporting present-day programs of government. Mr. Harvey. Open to Juniors and Seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; offered in 1946-1947.)

65, 66. SEMINAR IN GOVERNMENT AND IN INTERNATIONAL RELATIONS. Readings, papers, and reports. Mr. Alexander, Mr. Harvey. Open to Senior majors in Government. 4 cr. (Formerly Govt. 63-64.)

COURSES PRIMARILY FOR GRADUATE STUDENTS

102. THE CONSTITUTION AND CIVIL RIGHTS. The concept of civil rights as expounded by the framers of the Constitution. An analysis of United States Supreme Court decisions interpreting the Bill of Rights. Consideration is given to the social, economic, and political implications of civil liberties. Mr. Alexander. Prereq.: 12 credits of work in Government, including Govt. 51. 3 cr. (Given in alternate years; offered in 1946-1947.)

104. SEMINAR IN PROBLEMS OF PUBLIC ADMINISTRATION. The seminar will be devoted to an intensive investigation of selected problems in public administrative management and administrative law. Mr. Harvey. Prereq.: 12 credits of work in Government, including Govt. 57. 3 cr. (Given in alternate years; not offered in 1946-1947.)

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105. SEMINAR IN WORLD POLITICS. A detailed analysis of the major forces and factors influencing the development of modern world politics. Discussion of individual topics selected by students of the seminar; preparation of theses and oral reports in the field of international relations and world politics. Prereq.: 12 credits of work in Government, including Govt. 55 or equivalent. Mr. Gyorgy. 3 cr.

GREEK

(See LANGUAGES, page 241.)

HANDICRAFT

(See THE ARTS, page 176.)

HISTORY

PHILIP M. MARSTON, *Associate Professor*; WILLIAM YALE, *Associate Professor*; ALLAN B. PARTRIDGE, *Assistant Professor*; GIBSON R. JOHNSON, *Assistant Professor*; HARRY D. BERG, *Assistant Professor*.

In these courses an important place is given to historical reading carried on in the reference room. Often a considerable part of the work is written.

The statements in regard to prerequisites are for Liberal Arts students. Agriculture and Technology students should consult the Head of the Department.

SURVEY COURSE

The following subject constitutes a basic course, required of all students in the College of Liberal Arts.

1, 2. INTRODUCTION TO CONTEMPORARY CIVILIZATION. Designed to provide a background of appreciation of the social significance of man's environment, the nature of man, the cultural heritage from the past, recognition of historical allusions in literature and conversation, and knowledge of the general sequence of historic events. Prehistoric and historic social evolution. The historic explanation of modern life and an appreciation of the problems of contemporary society. Messrs. Berg, Johnson, Marston, Partridge, and Yale. 3 lec. or rec.; 3 cr. *This course cannot be used to satisfy major requirements.*

GROUP I. ANCIENT AND MEDIEVAL

This group includes many of the customary well-established courses in History. Students electing History courses with the general idea

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of rounding out their knowledge should include a selection from this group. History majors are expected to do a part of their work in it.

11. **THE ANCIENT ORIENT.** Pre-historic culture in the Near East: a consideration of the contributions of the many peoples and empires, from the Persian highlands to Egypt and the *Ægean*, in the making of the civilization handed on to the Mediterranean and Western world. Mr. Partridge. For Sophomores, Juniors, and Seniors. 3 lec. or rec.; 3 cr.

12. **HISTORY OF GREECE.** The deep-lying elements of Western civilization as developed by Greek thought and action. Hellenic culture and its influence, including adequate attention to the period after the death of Alexander the Great. Mr. Partridge. For Sophomores, Juniors, and Seniors. 3 lec. or rec.; 3 cr.

13. **HISTORY OF ROME.** The study of Roman civilization from the pre-literary foundations of Rome to the fourth century A.D. The aim is to deal with the life of society during the republican and imperial periods and to show the background of mediæval culture and the influence of the Romans upon later human affairs. Mr. Partridge. For Sophomores, Juniors, and Seniors. 3 lec. or rec.; 3 cr. (Formerly Hist. 13, 14.)

14. **MEDIÆVAL HISTORY.** The story of things as they were from the later Roman Empire to the Renaissance era in Europe. A leading purpose is to call attention to the dependence of the Middle Ages upon an earlier period, and another is to point out the mediæval foundations of Modern European history. Mr. Partridge. For Sophomores, Juniors, and Seniors. 3 lec. or rec.; 3 cr. (Formerly Hist. 15, 16.)

ENGLISH HISTORY. (See History 21.)

FAR EASTERN HISTORY. (See History 31.)

GROUP II. MODERN

This group is planned in recognition of the practical importance and large place assigned by common practice to modern, recent, and present-day aspects of History.

19, 20. **MODERN EUROPEAN HISTORY.** Studies of: (1) That most important phenomenon, the modern national state; (2) Western civilization as it reached a peak in Europe; (3) European expansion and world leadership, from the late fifteenth to the early twentieth century. Eastern Europe, Asia, and Africa are referred to as backgrounds of the colonial movement. Because of its general importance, the course is open to all students; nevertheless, it is better, if possible,

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to study some of the earlier periods first. Mr. Yale. For Sophomores, Juniors, and Seniors. 3 lec. or rec.; 3 cr.

21, 22. HISTORY OF ENGLAND. The history of the British Isles from earliest times to the present, and a consideration of the British Empire and Commonwealth of Nations. A parallel to English literature, a background to American political history, and a study of English culture and institutions in the democratic and social integration of the world. Mr. Partridge. For Sophomores, Juniors, and Seniors. 3 lec. or rec.; 3 cr.

31, 32. THE FAR EAST. A study of the history of the peoples and cultures of Japan, China, India, and adjacent territories for the purpose of gaining a better understanding of their contemporary problems and ways of thinking and acting, especially as they relate to modern world developments. Mr. Johnson. For Sophomores, Juniors, and Seniors. 3 lec. or rec.; 3 cr.

63, 64. RECENT WORLD HISTORY. The world from the first World War, exclusive, for the most part, of American affairs, and stressing historical developments in Europe, the Near and Far East. Mr. Yale. For Juniors and Seniors. 3 lec. or rec.; 3 cr.

71, 72. HISTORY OF RUSSIA IN THE NINETEENTH AND TWENTIETH CENTURIES. A study of Tsarist Russia in the nineteenth century, its domestic and foreign affairs, and its collapse in 1917; followed by a study of Soviet Russia from the creation of the Soviet Union to the present. Mr. Yale. For Juniors and Seniors. 3 lec. or rec.; 3 cr.

GROUP III. AMERICAN HISTORY

This group addresses itself to (1) the responsibility of the American student to know his own country; (2) the widespread and well established interest in New England's part in our history; (3) the developing Pan-American world; (4) some special aspects of American life, and American culture of the nineteenth and twentieth centuries.

7, 8. THE UNITED STATES FROM 1790 TO THE PRESENT. The administration of Washington, the great forces of nationalism, expansion, democracy, and sectionalism followed through the period of the Spanish-American War. Reference to such aspects of our national life as literary, artistic, scientific, and everyday life-ways, as well as the more usual political and economic events. Mr. Berg. For Sophomores, Juniors, and Seniors. 3 lec. or rec.; 3 cr.

9, 10. LATIN-AMERICAN HISTORY. The development and influence of Spanish and Portuguese culture as a wide-spread world force; the history of the Latin-American peoples; the relationship of Latin

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America and North America, particularly in view of recent growth in friendly and diplomatic relations. Mr. Partridge. For Sophomores, Juniors, and Seniors. 3 lec. or rec.; 3 cr.

51, 52. COLONIAL AND REVOLUTIONARY AMERICAN HISTORY. Colonial beginnings in America, national rivalries, the English colonies, the Revolution, and our national life in 1789. Early forms of Americanism in the making. Mr. Marston. For Juniors and Seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; offered in 1946-1947.)

59, 60. SOCIAL AND CULTURAL HISTORY OF NEW ENGLAND. From the settlements to the present. The material and intellectual aspects peculiar to New England's social and cultural life. The viewpoint is partly that of the antiquarian. Source materials figure considerably. It is assumed that the student is familiar with the general history of New England. Mr. Marston. For Juniors and Seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; not offered in 1946-1947.)

81, 82. HISTORY OF THE WEST. The development of the United States as it was influenced by the successive "wests" in our history from Jamestown to the Pacific; the geography and economics of the westward movement. The frontier thesis will be considered in relation to the present-day position of the United States as a world power. Mr. Berg. For Juniors and Seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; not offered in 1946-1947.)

83, 84. DIPLOMATIC HISTORY OF THE UNITED STATES. A study and reappraisal of American foreign relations in the light of our present position and commitments. The course begins with American independence and will be brought up to date through the use of current periodicals and newspapers. Mr. Berg. For Juniors and Seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; offered in 1946-1947.)

GROUP IV. HISTORY FROM AN EDUCATIONAL OR PHILOSOPHICAL VIEWPOINT
See Philosophy 55, 56, Philosophy of History.

87, 88. THE INTELLECTUAL HISTORY OF WESTERN CIVILIZATION. The history of ideas and of the great epochs in human thought. A study of the dominant characteristics of the leading cultures and of the transitions from one to the other. The content of the course will be selective rather than inclusive. Special attention will be given to a study of some of the major source writings of each period. Mr. Johnson. For Juniors and Seniors. 3 lec. or rec.; 3 cr.

HISTORY-EDUCATION (HIST-ED) 91. PROBLEMS IN THE TEACHING OF HIGH SCHOOL HISTORY. The purposes and objectives of teaching high school history; selection and organization of teaching material; teaching and testing techniques which may be advantageously used in

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teaching high school history and other social studies; experiments in studying and teaching history. Mr. Berg. Open to students who have satisfactorily completed Hist. 7-8, Govt. 1-2, Econ. 1 or 3, Sociol. 1, and Ed. 61. 3 class meetings; 3 cr.

The Departments of Economics, Agricultural Economics, Government, History, Mathematics, and Sociology offer jointly a course designed to meet the needs of those Social Science students who are interested primarily in Statistics as applied to the Social Science fields. See Social Science 51, page 275.

COURSES PRIMARILY FOR GRADUATE STUDENTS

111, 112. SEMINAR IN THE HISTORY OF NEW ENGLAND. For graduate students who wish to specialize in some phase of New England history or the history of New Hampshire. The work is concerned primarily with the study and interpretation of source material and can be correlated with the preparation of a thesis. Mr. Marston. Prereq.: Permission of the instructor. 3 cr. (Not offered in 1946-1947.)

113, 114. SOURCES FOR THE STUDY OF COLONIAL AMERICAN HISTORY. For students who have taken History 51, 52 or equivalent. Training in the methods of historical investigation and in the use of sources in the field of Colonial American History. The preparation of papers based on source materials alone. Mr. Marston. Prereq.: Permission of the instructor. 3 cr.

123, 124. HISTORIOGRAPHY. The lives and writing of some leading historians from earliest times to the present, and their contributions to scope, method, viewpoint, and literary achievement. Mr. Partridge. Prereq.: Permission of the instructor. 3 cr. (Not offered in 1946-1947.)

HOME ECONOMICS

HELEN F. McLAUGHLIN, *Professor*; VERNA MOULTON, *Assistant Professor*; TATIANA LECOWICH, *Instructor*; DOROTHY COUSENS, *Instructor*; SARAH THAMES, *Dietitian, University Dining Hall*

1, 2. HOMEMAKING. The various phases of homemaking and the vocational opportunities open to women. Mrs. McLaughlin. Exploratory course; 3 lec. or rec.; 3 cr. *This course cannot be used to satisfy major requirements in Home Economics.*

Note: Further work than is offered in any of the following courses may be taken under H.Ec. 47, (47), Projects in Home Economics.

CLOTHING AND TEXTILES

3. CLOTHING SELECTION. The selection of suitable and becoming

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clothing; color; good grooming; clothing budgets; care and repair of clothing. Miss Moulton. 3 lec. or rec.; 3 cr.

4. TEXTILES. A study of textiles with emphasis on their characteristics, utilization, care, and purchase from the point of view of the consumer. Miss Moulton. 2 lec. or rec.; 1 lab.; 3 cr.

5-6. CLOTHING CONSTRUCTION. Application of the principles of design and development of technique in garment construction including cotton and woolen garments, a renovation problem; pattern alteration, and children's clothes. Miss Moulton. 2 labs.; 2 cr.

61, (61). ADVANCED PROBLEMS IN CLOTHING CONSTRUCTION. A tailored suit or coat and one or more individual problems involving advanced techniques in the construction and renovation of clothing. Miss Moulton. Permission of instructor. 2 labs.; 2-3 cr.

(62), 62. PROBLEMS IN SEWING FOR THE HOME. Curtains, draperies, slip covers, and bedspreads. Miss Moulton. Permission of instructor. 2 labs.; 2-3 cr.

HISTORIC COSTUME AND DESIGN. (See Arts 43-44, page 178.)

FOOD AND NUTRITION

15-16. FOODS. The composition, selection, preservation, and preparation aspects of foods; meal planning and table service. Miss Levcowich. 1 lec.; 2 labs.; 3 cr.

21, 22. ELEMENTARY MEAL SERVICE. Planning, preparing, and serving simple, nutritious, and attractive meals. Miss Levcowich. For students not majoring in H.Ec. 1 lec.; 1 lab.; 2 cr.

71. EXPERIMENTAL COOKERY. The application of principles and methods for organizing general and specific problems in food preparation, of an experimental nature, will be considered. Miss Levcowich. Prereq.: H.Ec. 15-16. 1 lec.; 1 lab.; 2 cr.

72. ADVANCED PROBLEMS IN FOODS. Selected problems in one or more phases of food study such as advanced food preparation, advanced meal planning and table service. Miss Levcowich. Prereq.: H.Ec. 15-16. 1 lec.; 1 lab.; 2 cr.

74. DIETETICS. Application of the principles of human nutrition to varying physiological, social, and economic conditions. Mrs. McLaughlin and Miss Levcowich. 2 lec.; 1 lab.; 3 cr.

75. DIET THERAPY. Study of special diets used for the prevention and treatment of various diseases. Readings in the current literature of nutrition. Mrs. McLaughlin. Prereq.: H.Ec. 74. 3 rec.; 3 cr.

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CHILD DEVELOPMENT

25, 26. CHILD DEVELOPMENT. The normal development and care of the infant and child; physical, mental, social, and emotional development and guidance. Mrs. Cousens. Prereq. or parallel requirement: Psych. 7 or 51. 2 lec. or discussions; laboratory work with children in the play group. 3 cr.

81, (82), (81), 82. PROJECTS IN CHILD DEVELOPMENT. Principles of child guidance. Nursery school procedures and practice. Discussion and supplementary projects based upon the special interests of the students. Prereq.: H.Ec. 25, 26. 1 lec. or discussion; laboratory with children in the play group: 2-3 cr.

HOME MANAGEMENT

32. HOME FURNISHING. Historical survey of furniture; problems in decorating and furnishing a modern home. Miss Moulton. 3 lec.; rec. or conferences; 3 cr.

33. HOME MANAGEMENT. Management of time, energy, and money in relationship to home living; skills and techniques for care of the home. Mrs. Cousens. Not open to Freshmen. 2 lec. or rec.; 1 lab.; 3 cr.

34. CONSUMER PROBLEMS. Problems of the consumer as related to market practices, quality and quantity standards, evaluation of advertising, and selection of goods and services for the home. Mrs. Cousens. 3 lec. or rec.; 3 cr.

35, (35). HOME MANAGEMENT HOUSE. Participation in homemaking; planning, buying, and preparing meals; care of the house; efficient work habits; problems of management. Residence in the Home Management House. Mrs. Cousens. Half semester. Permission of the Head of the Department. 3 cr.

83. HOME AND FAMILY LIFE. A study of the problems confronting the home today in everyday living, such as relationships between family members, desirable home atmosphere, and worthy home membership. Mrs. McLaughlin. 3 lec. or rec.; 3 cr.

HOME BUILDING. (See Agricultural Engineering 31, page 173.)

HOUSEHOLD MECHANICS. (See Agricultural Engineering 38, page 173.)

INSTITUTIONAL MANAGEMENT

41. INSTITUTIONAL MANAGEMENT. The organization and management of institutional food service; personnel policies, plant sanitation,

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records, menu planning, food buying, production, and merchandising. Field trips to study organization and management. Miss Thames. 3 lec. or rec.; 3 cr.

43-44. INSTITUTIONAL PRACTICE. Practical experience in the kitchens and serving rooms of the University Commons. Miss Thames. 2 lab.; 2 cr.

45. FURNITURE, EQUIPMENT, AND TEXTILES. Problems in the purchase, care, and use of equipment, furniture, and textiles for institutions. Miss Moulton. 3 rec.; 3 cr. (Formerly H.Ec. 46.)

48. FIELD WORK IN INSTITUTIONAL PRACTICE AND EXTENSION. Six to ten weeks' residence and practical experience in an approved hospital or other institution, or with extension groups, supplemented by readings and conferences. Mrs. McLaughlin and Extension staff. 4-6 cr.

49-50. QUANTITY COOKERY. Principles, methods, and standards of food planning, preparations, and serving as applied to institutional food service. Laboratory work in the quantity-cookery laboratory at the University Commons. Miss Thames. Prereq.: H.Ec. 15-16. 2 labs.; 2 cr.

HOME ECONOMICS EDUCATION

47, (47). PROJECTS IN HOME ECONOMICS. Opportunities for students to work out projects supplementary to or in advance of other courses. Not more than 9 credits may be taken in this course. Members of Home Economics staff. Conferences and assignments; reference readings; 1-3 cr.

Home Economics-Education (HE-Ed) 91. PROBLEMS IN THE TEACHING OF HIGH SCHOOL HOME ECONOMICS. Mrs. McLaughlin. 3 lec. or rec.; 3 cr.

Home Economics-Education (HE-Ed) 94. SUPERVISED TEACHING IN HIGH SCHOOL HOME ECONOMICS. Mrs. McLaughlin. Twelve weeks' supervised teaching, 10 cr.

Home Economics-Education (HE-Ed) 96. SEMINAR IN THE TEACHING OF HIGH SCHOOL HOME ECONOMICS. Mrs. McLaughlin. Prereq.: HE-Ed 94. Four weeks' intensive work following period of supervised teaching. 3 cr.

Home Economics-Education (HE-Ed) 98. PRINCIPLES AND TECHNIQUES OF DEMONSTRATIONS. Fundamentals of demonstration methods. Experience in conducting demonstrations in foods, clothing, home management, equipment, and other fields. Home Economics staff. 1 conference; 1-2 lab.; 2-3 cr.

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HORTICULTURE

ALBERT F. YEAGER, *Professor*; J. RAYMOND HEPLER, *Associate Professor*; L. PHELPS LATIMER, *Assistant Professor*; WILLIAM W. SMITH, *Assistant Professor*; E. W. KALIN, *Assistant Professor*.

2. PLANT PROPAGATION. Discussion and practice including soil, sand, and peat media; seed treatments, seeding, watering, light, feeding, and temperatures; leaf, softwood and hardwood cuttings; hormone treatments; budding, root, top- and bridge-grafting; seedbed and nursery practice. Mr. Yeager, Mr. Kalin, Mr. Smith. 1 lec.; 1 lab.; 2 cr.

13. JUDGING IN HORTICULTURE. Judging of fruits, vegetables, and flowers, and of fruit and vegetable products. Recommended for students who expect to be county agricultural agents or teachers, and for Hotel Management and Home Economics majors. Mr. Latimer, Mr. Hepler, Mr. Kalin, Mr. Yeager. 2 lab.; 2 cr.

14. ELEMENTARY VEGETABLE GARDENING. Garden soils; testing and planting seeds, selection of varieties with reference to New Hampshire conditions; construction and management of hotbeds and cold frames; fertilization, cultivation, and irrigation of the garden. Mr. Hepler. 2 lec.; 1 lab.; 3 cr.

28. LANDSCAPE GARDENING. The design and maintenance of small properties with emphasis on the principles of arrangement and the use and identification of plant materials in the beautification of home surroundings. Mr. Kalin. 2 lec.; 1 lab.; 3 cr. (Given in alternate years; offered in 1946-1947.)

38. FLORAL ARRANGEMENT. Floral design and the use of flowers in the home; practice in floral arrangement. A laboratory fee of \$3 is charged. Mr. Kalin. Prereq.: Permission of the instructor. Not open to Horticulture majors. 1 lab.; 1 cr.

39. GREENHOUSE MANAGEMENT. Modern methods of Greenhouse Management including soils, watering, costs of production and marketing, and fundamentals of plant behavior under glass. Varieties, culture, and enemies of greenhouse plants. Practical work in propagating, potting, and other greenhouse operations. Mr. Kalin. 2 lec.; 1 lab.; 3 cr. (Given in alternate years; offered in 1946-1947. Students may elect additional work on greenhouse crops under Hort. 51 and 52.)

40. FLORICULTURE, FUNDAMENTALS AND PRACTICES. The fundamentals underlying the growing of plants; culture and classification of greenhouse and outdoor plant materials; study of garden design and the use of garden flowers and deciduous plant materials in beautifying the home; practice work in propagating plants, sowing seeds, transplant-

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ing, and other garden work. Not recommended for Horticulture majors. Mr. Kalin. 2 lec.; 1 lab.; 3 cr.

41. COMMERCIAL FLORAL DESIGN. The design and use of flowers in commercial flower shops including vase arrangements, baskets, corsages, sprays, and wedding decorations; principles of retail store management. For Juniors and Seniors majoring in Horticulture. Mr. Kalin. 1 lec.; 1 lab.; 2 cr. (Given in alternate years; offered in 1946-1947.)

44. HORTICULTURAL PRACTICE. Seasonal practice work in fruit production, ornamentals, or vegetable production. Mr. Yeager and staff. Prereq.: Hort. 14 and 28 or 40. 1 to 5 cr.

48. BEEKEEPING. Habits of honey bees, assembling and use of hives, practice in handling bees. Production of commercial crops of comb and extracted honey, care and protection of bees during fall and winter, extraction of honey and preparation of comb honey and wax. Mr. Hepler. 1 lec.; 1 lab.; 2 cr.

51, 52. ADVANCED HORTICULTURE. Courses to be elected by students majoring in Horticulture and special students to gain further knowledge and specialization in the field of fruit, flower, vegetable production, and beekeeping. Additional laboratory practice if desirable. Mr. Yeager and staff. Prereq.: Permission to register from Head of the Department. 1 to 3 cr.

53. POMOLOGY: ORCHARD FRUITS. Fundamental principles and experimental data and their applications to orchard problems including the establishment of orchards, soil management, water and fertilizer requirements, mineral deficiencies, training and pruning, fruit bud formation, pollination and fruit setting, thinning and winter injury. Mr. Latimer. Prereq.: Bot. 1. 3 lec.; 3 cr.

54. POMOLOGY: SMALL FRUIT CULTURE. The culture and economic uses of the strawberry, raspberry, blackberry, blueberry, and grape. Each fruit is considered with relation to its history, propagation, planting, pruning, harvesting, marketing, insects, and diseases, and domestic uses. Mr. Latimer. 2 lec.; 2 cr.

55. SYSTEMATIC SURVEY OF FRUITS. Important species of fruits and nuts of temperate regions and their botanical relationships. The history, distribution, and merits of each species, and the horticultural varieties developed from it. Mr. Latimer. Prereq.: Bot. 1. 2 lec.; 2 cr. (Given in alternate years; offered in 1946-1947.)

57. SYSTEMATIC SURVEY OF VEGETABLES. Important species of vegetables and culinary herbs and their botanical relationships. The history, distribution, and commercial merit of each species and the horti-

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cultural varieties developed from it. Mr. Hepler. 2 lec.; 2 cr. (Given in alternate years; not offered in 1946-1947.)

65. COMMERCIAL VEGETABLE PRODUCTION. The management of commercial vegetable gardens. Important vegetables and their culture including a comprehensive review of recent experimental work. Mr. Hepler. Prereq.: Hort. 14. 2 lec.; 1 lab.; 3 cr.

91, 92. HORTICULTURE SEMINAR. A review of recent Horticultural literature and methods of investigational work. Students required to prepare and present papers on selected topics. Horticultural staff. For Seniors in Hort. Others by permission of Department Head. 1 lec.; 1 cr.

94. PLANT BREEDING. Application of the principles of genetics to practical plant breeding. Hybridization, chemical treatments, and selection as means of producing and improving varieties. Mr. Yeager. Prereq.: Zoöl. 49. 2 lec.; 1 lab.; 3 cr.

COURSES PRIMARILY FOR GRADUATE STUDENTS

101. FLOWER BUD FORMATION. The influence of soil management, orchard fertilization, and resultant chemical composition of fruit plants, on flower bud formation and alternate bearing. Mr. Latimer. Prereq.: Ag. Chem. 2, Hort. 53. 2 rec.; 2 cr.

102. METHODS OF HORTICULTURAL RESEARCH. An examination of methods used in laboratory and field by horticultural investigators. Mr. Yeager and staff. Prereq.: Ag. Chem. 2, Bot. 4, Hort. 53 or 65, Math. 5-6 or 21-22. 2 rec.; 2 cr.

103. WINTER INJURY. The physiology of winter injury to plants. Mr. Latimer. Prereq.: Bot. 4, Hort. 53 or 65. 2 rec.; 2 cr.

104. PROPAGATION AND GROWTH. The problems of water relations, rest period, propagation, pruning, and thinning orchard fruits. Mr. Kalin. Prereq.: Ag. Chem. 2, Bot. 4, Hort. 53 or 65. 2 rec.; 2 cr.

106. POLLINATION AND FRUIT SETTING. Genetical and environmental factors affecting the production of fruit. Mr. Latimer. Prereq.: Bot. 4 (may be taken concurrently), Hort. 53, Zoöl. 49. 2 rec.; 2 cr.

108. VEGETABLE PROBLEMS. A study of the physiological problems involved in vegetable production. Mr. Hepler. Prereq.: Bot. 4 (may be taken concurrently), Hort. 53 or 65. 2 rec.; 3 cr.

125, 126. RESEARCH IN HORTICULTURE. Mr. Yeager and staff. Prereq.: Hort. 102 (may be taken concurrently). Credits to be arranged.

HOTEL ADMINISTRATION

HOTEL ADMINISTRATION

RAYMOND R. STARKE, *Professor.*

The courses listed below are given primarily for students in Hotel Administration. Other students are invited to elect these courses with the permission of the instructor provided they have the prerequisites.

1. ORIENTATION. An introduction to Hotel Administration including a history of hospitality the world over with particular reference to the development of the hotel business in the United States. Required of Freshmen in Hotel Administration. 2 lec.; $\frac{1}{2}$ cr.

5. HOTEL OPERATION. The problems of the hotel manager form the basis of work in this course. Some sections studied are the organization, personnel and work of departments, front office procedure, control of income and expenditure and overhead expenses incurred in establishing a hotel property. The point of view of the resort hotel man is constantly compared with that of the metropolitan operator. B. Ad. 9-10 should precede or accompany this course. 3 lec. or rec.; 3 cr.

6. HOTEL PUBLIC RELATIONS. The relations of the hotel with the public, either as prospective or present guests; sales promotion media and advertising. For Juniors and Seniors. 2 lec. or rec.; 2 cr.

8. FRONT OFFICE PROCEDURE. The layout of the hotel office, the members of the staff and their relation to other staffs of the hotel. Equipment, and procedures of keeping guest accounts. For Juniors and Seniors with permission of the instructor. 1 class discussion; 1 cr.

12. FINANCIAL STATEMENTS. A study of financial reports and statements directed towards costs and percentages in hotel operations. The work is based on the Uniform System of Accounts for hotels as recommended by the American Hotel Association. Prereq.: B. Ad. 10 or Hotel Admin. 5. 2 lec. or rec.; 2 cr.

ELEMENTARY DRAFTING. (See page 248.)

21, 22. INTRODUCTORY HOTEL ENGINEERING. To give an engineering background with additional practical information, this course supplies much of the material of an elementary Physics course with an added study of practical hotel problems, for example, common laundry practices and kitchen planning. Laboratory work will supplement the recitations and three or more inspection trips are made during the year. 3 lec. or rec.; 1 lab.; 4 cr.

23. STEWARDING. The management of the steward's department of a hotel, comprising the purchasing, storage, and issuing of foods, beverages, and supplies with the proper records to keep in connection

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therewith. This course will be given by an experienced steward. Prereq.: none. 2 lec. (One afternoon on alternate weeks); 1 cr.

40, 42, 44, 46. LECTURES ON HOTEL MANAGEMENT. Delivered by representative and well-known men in the hotel business and allied fields. $\frac{1}{2}$ cr. for each course.

HUMANITIES

HUMANITIES 1-2. A course in general education involving the Departments of Languages, English, Music, The Arts, and Philosophy, and designed to give an appreciation of literature, the various arts, and philosophy. The course will operate within an historical framework, but is not intended to be an historical survey. Weekly lectures or demonstrations by different members of the Humanities Division, readings, study of slides, films, recordings, class recitations and discussions twice each week. Mr. Daggett. Open to Sophomores, Juniors and Seniors. 3 lec. or rec.; 3 cr.

INSTITUTIONAL MANAGEMENT

(See page 232.)

LANGUAGES

CLIFFORD S. PARKER, *Professor*; JOHN S. WALSH, *Associate Professor*; PAUL L. GRIGAUT, *Associate Professor*; JULIO BERZUNZA, *Assistant Professor*; JAMES T. SCHOOLCRAFT, *Assistant Professor*; GERTRUDE B. TELLER, *Instructor*.

GENERAL LANGUAGE AND LITERATURE

LANGUAGES 1, 2. SURVEY OF GREEK AND ROMAN LITERATURE. The masterpieces of Greek and Roman literature in translations. A cultural course for the general student unprepared to read the original languages but desiring acquaintance with this important subject matter. A background course for majors in such subjects as English, History, Latin, or one of the modern languages and literatures. Continued in Languages 51, 52. 3 rec.; 3 cr. (Not offered in 1946-1947.)

LANGUAGES 51, 52. SURVEY OF MODERN EUROPEAN LITERATURE. The Renaissance, classicism, romanticism, and realism studied as international movements. Stress will be laid, not upon the details of each national literature, but upon the interdependence of the literatures of the various countries. Conducted in English. Prereq.: Junior, Senior, or Graduate standing. 3 rec.; 3 cr. (Not offered in 1946-1947.)

LANGUAGES

LANGUAGES 73-74. GENERAL INTRODUCTION TO THE SCIENCE OF LANGUAGE. Origins of language; languages of the world; phonology; morphology; syntax; semantics, etymology; comparative philology; dialect divergence; linguistic change; race, culture, and language; psychology of language. Open to all students. 3 lec.; 3 cr. (Not offered in 1946-1947.)

LANGUAGES-EDUCATION (LANG-ED) 91. PROBLEMS IN THE TEACHING OF MODERN LANGUAGES IN THE HIGH SCHOOL. The special objectives, methods, and devices of modern language teaching in high schools. For prospective teachers of French, German, and Spanish. Prereq.: Education 61 with grade of C or better and one of the following courses: French 6, German 4, Spanish 4. 3 rec.; 3 cr.

FRENCH

(Freshmen will be assigned to French 1, French 3, or French 5, on the basis of their performance in the French placement examination in Orientation Week.)

1-2. ELEMENTARY FRENCH. Elements of French grammar, reading of simple prose, oral practice. 3 rec.; 3 cr. *Cannot be counted for major credit.*

3-4. INTERMEDIATE FRENCH. Review of most important rules of grammar; reading of a large amount of diversified French prose, partly in class, partly outside; oral practice. Principal objectives: (1) to give a solid foundation for further work in French; (2) to increase the facility and accuracy of students' reading and oral knowledge of French. Prereq.: French 2 or its equivalent. 3 rec.; 3 cr.

5-6. FRENCH CIVILIZATION AND LITERATURE. Principal objectives: (1) to study the history of French culture; (2) to increase students' ability to use and understand the French language; (3) to prepare for the study of French language and literature in more advanced courses; (4) to enable students to understand some of the forces which may influence the reconstruction of France. Prereq.: French 4. 3 rec.; 3 cr.

11-12. FRENCH LITERATURE OF THE SEVENTEENTH AND EIGHTEENTH CENTURIES. French Literature from 1600 to the French Revolution. Topics studied include: the rise and development of the classical ideal; the masterpieces of the great writers of the age of Louis XIV; the decline and disintegration of classicism in the eighteenth century; the work and influence of Voltaire and Rousseau; the writers who represent the beginnings of romanticism. Prereq.: French 6. 3 rec.; 3 cr. (Not offered in 1946-1947.)

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13-14. FRENCH COMPOSITION AND CONVERSATION. The use of written and spoken French taught by careful attention to pronunciation, composition, and grammar. To provide as much oral practice as possible, the usual preparation for recitation will be partially replaced by three drill sessions per week. Prereq.: French 4 with grade A or B; or French 6. 6 rec.; 3 cr.

53. FRENCH ROMANTICISM AND REALISM. The period from 1800 to approximately 1870; Chateaubriand and Mme. de Staël; the Romantic School (Lamartine, Vigny, Victor Hugo, Dumas, Musset, etc.); the historical novel and drama; the intermingling of romanticism and realism in the work of Balzac; realism in the novel, the drama, and poetry (Flaubert, Augier, Dumas fils, Leconte de Lisle, etc.) Prereq.: French 6. 3 rec.; 3 cr.

54. FRENCH LITERATURE FROM 1870 TO THE PRESENT. The work of Zola, Maupassant, Daudet, Bourget, Verlaine, Becque, and other outstanding writers of the last part of the nineteenth century; the various trends, schools, and individual writers of the twentieth century. Prereq.: French 53. 3 rec.; 3 cr.

61-62. ADVANCED FRENCH GRAMMAR AND COMPOSITION. A systematic study of French grammar with much oral and written practice. For students who wish to perfect their command of written and spoken French. Prereq.: French 6. (Students are advised to have had French 13-14 or the equivalent.) 3 rec.; 3 cr.

63-64. FRENCH LITERATURE AND CIVILIZATION OF THE MIDDLE AGES AND THE RENAISSANCE. The various forms and masterpieces of French literature from the beginning to the year 1600. Recommended for Seniors and Graduate students. Prereq.: French 12 or 54. 2 lec.; 2 cr.

92. ORAL FRENCH. Accuracy and facility in the use of oral French will be attempted through the study of phonetics and the use of dictation, conversation, phonograph, and other devices. Prereq.: French 14 or 61. 2 rec.; 2 cr.

COURSES PRIMARILY FOR GRADUATE STUDENTS

101, 102. HISTORY OF FRENCH LITERATURE. This course is not an introduction to French literature, but complements what the student has previously learned. The work consists of individual conferences between instructor and student and a large amount of reading. In general, each student is expected to study more carefully the authors of whom he has some knowledge, to fill in the gaps between courses he has taken, and to obtain an integrated knowledge of all French literature. Prereq.: Permission of Head of Department. Mr. Parker. 3 cr.

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103, 104. SPECIAL STUDIES IN FRENCH LITERATURE. An intensive study of one or two important authors each semester; their lives, works, and times. Molière and Alfred de Vigny, for example, might supply the material for an entire year's work. The particular authors studied, however, may be changed from year to year in accordance with the needs and tastes of the students electing the course. The work will be conducted largely in French. Mr. Grigaut. Prereq.: 18 crédits in undergraduate courses in French literature. 3 cr.

GERMAN

1-2. ELEMENTARY GERMAN. Elements of German grammar, reading of simple prose, oral practice. 3 rec.; 3 cr. *Cannot be counted for major credit.*

3-4. INTERMEDIATE GERMAN. Designed to increase students' facility in speaking and reading German. The conversational material will comprise idiomatic and colloquial German expressions. The reading material, which will include modern texts of varied content and progressive difficulty, will make the course of value for those who wish to use German in other academic fields, or who intend to take courses in German literature. Prereq.: German 2 or two years of high school German. 3 rec.; 3 cr.

5-6. SCIENTIFIC GERMAN. For Pre-Medical students and majors in Physics, Chemistry, Geology, Forestry, Agriculture, and Engineering. To facilitate the reading of German scientific treatises. Prereq.: German 2 or two years of high school German. 3 rec.; 3 cr.

11-12. GERMAN LITERATURE FROM 1750 TO THE END OF THE CLASSICAL PERIOD. The development of German literature during the epoch of the *Aufklärung* and the *Sturm und Drang* to the end of the classical period. Lessing, Goethe, and Schiller chiefly studied. Prereq.: German 4 or the equivalent. 3 class hours; 3 cr. (Not offered in 1946-1947.)

13-14. GERMAN CONVERSATION AND COMPOSITION. For students who desire a fluent practical command of spoken and written German. Class discussions conducted in German. Opportunity for informal conversation, for discussion in German of topics prepared in advance, and for free German composition. Prereq.: German 2. 3 rec.; 3 cr. (Not offered in 1946-1947.)

53-54. GERMAN ROMANTICISM. The revival of the historical and imaginative Middle Ages in the first half of the nineteenth century. Prereq.: Two years of college German or the equivalent. 3 class hours; 3 cr. (Not offered in 1946-1947.)

57-58. MODERN GERMAN LITERATURE. The development of German

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literature from 1832 to the present, with special emphasis on the novel and drama. Authors considered are Grillparzer, Hebbel, Ludwig, Keller, Meyer, Wagner, Hauptmann, Sudermann, Thomas Mann, Rilke, George, and Schnitzler. Prereq.: Two years of college German or the equivalent. 3 class hours; 3 cr. (Not offered in 1946-1947.)

GREEK

1-2. ELEMENTARY GREEK. Grammar, composition, translation. Prereq.: Permission of the instructor. 3 rec.; 3 cr. (Not offered in 1946-1947.)

3-4. Translation of several books of Homer's *Iliad*; work in grammar and word-derivations. Prereq.: Greek 2. 3 rec.; 3 cr. (Given every third year; not offered in 1946-1947.)

LATIN

1-2. ELEMENTARY LATIN. Elements of grammar, reading of simple prose. Study of the changes in meaning and form of English and Romance language derivatives from Latin. 3 rec.; 3 cr. (Not offered in 1946-1947.) *This course cannot be used to satisfy major requirements.*

3-4. INTERMEDIATE LATIN. A review of Latin grammar and vocabulary, followed by readings in poetry and prose. Prereq.: Latin 2 or two years of high school Latin. 3 rec.; 3 cr. (Not offered in 1946-1947.)

5-6. LATIN POETRY. Selected poems from Catullus, Ovid, Phaedrus, Martial, and the odes and epodes of Horace. Translations, lectures, and study of Latin influence on English poetry. Prereq.: Latin 4, or three years of high school Latin. 3 rec.; 3 cr.

7-8. LATIN PROSE AND COMEDY. The plays of Plautus and Terence, Livy's History (Books I and II), and Pliny's Letters, studied for their value as mirrors of the life and history of Rome as well as for their literary value. Prereq.: Latin 4. 3 rec.; 3 cr. (Not offered in 1946-1947.)

9-10. MASTERPIECES OF LATIN LITERATURE. Intensive study of selections from such prose writers as Plautus, Livy, Pliny, Caesar, and Cicero, and of such poets as Catullus, Horace, and Virgil. Rapid reading of other works by the same and additional authors. Lectures on Roman civilization and its contributions to the general culture of the world. 3 rec.; 3 cr. (Not offered in 1946-1947.)

51-52. PHILOSOPHY AND SATIRE. Philosophy, religion, natural science, and social theories of the Romans, as exemplified in the writings of

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Horace, Martial, and Cicero. Prereq. Latin 6. 3 rec.; 3 cr. (Not offered in 1946-1947.)

55-56. LITERATURE AND HISTORY. A comprehensive view of Latin literature of the Golden Age, particularly the works of Caesar, Cicero, and Virgil. Literary value and historical content will be studied as well as such background of the history of Rome during the period as is necessary for the student or teacher of the classics. Prereq.: Latin 6. 3 rec.; 3 cr. (Offered in 1946-1947.)

LATIN-EDUCATION (LAT-ED) 91-92. PROBLEMS IN THE TEACHING OF HIGH SCHOOL LATIN. The study of methods, objectives, and problems of teaching high school Latin will be carried on throughout the year concurrently with work in composition and conversation. Prereq.: Latin 6. 3 rec.; 3 cr. (Not offered in 1946-1947.)

COURSES PRIMARILY FOR GRADUATE STUDENTS

125, 126. LATIN LITERATURE. A study of Latin literature through the medium of selections from the works of the more important authors from the beginnings to the decline of literary Latin. This reading will be supplemented by a detailed study of some special field, author, or group of authors. Mr. Walsh. 3 rec.; 3 cr.

SPANISH

1-2. ELEMENTARY SPANISH. Elements of Spanish grammar, reading of simple prose, oral practice, dictation. 3 rec.; 3 cr. *This course cannot be used to satisfy major requirements.*

3-4. MODERN SPANISH PROSE AND POETRY. Review of grammar, reading, composition, and conversation. A large part of the reading will be in the field of Latin-American literature and civilization. Prereq.: Spanish 2 or its equivalent. Freshmen who pass a reading test in Spanish may take this course. 3 rec.; 3 cr.

9. THE DRAMA OF THE SIGLO DEORO IN SPAIN. Representative plays of Lope de Vega, Tirso de Molina, Guillen de Castro, Calderon, and other dramatists of the Golden Age of Spanish Literature. Prereq.: Spanish 4. 3 rec.; 3 cr. (Not offered in 1946-1947.)

10. THE PICARESQUE NOVEL AND THE WORKS OF CERVANTES. *Celestina*, *Lazarillo de Tormes*, *Don Quijote*, and other novels of the sixteenth and seventeenth centuries. Lectures on Spanish civilization. Prereq.: Spanish 4. 3 rec.; 3 cr. (Not offered in 1946-1947.)

13-14. SPANISH COMPOSITION AND CONVERSATION. The use of written and spoken Spanish taught by careful attention to pronunciation, grammar, and composition. While there will be some reading as a basis

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for conversation, the main stress will be laid on oral practice. Prereq.: Spanish 4 or grade of B in Spanish 2. 3 rec.; 3 cr.

55-56. **LATIN-AMERICAN LITERATURE.** Selected writers of Latin-American countries who illustrate literature and social conditions in Central and South America. Certain works will be discussed in class while others will be assigned for collateral reading. Prereq.: Spanish 4. 3 rec.; 3 cr. (Offered in 1946-1947.)

57-58. **LATIN-AMERICAN AUTHORS.** A careful study of six important writers from three countries (two authors from each country) in each semester will give to students some insight into the literature and social conditions of Latin-America. Certain works will be discussed in class while others will be assigned for collateral reading. This course will not repeat the content of Spanish 55-56, with which it will alternate in successive years. Prereq.: Spanish 4. 3 rec.; 3 cr. (Not offered in 1946-1947.)

COURSES PRIMARILY FOR GRADUATE STUDENTS

101, 102. **SPANISH LITERATURE OF THE MIDDLE AGES.** Masterpieces and writers of Spanish literature from the beginnings to 1500. Their historical background. Conducted as far as possible in Spanish. Prereq.: 3 years of college Spanish or equivalent; 3 lec.; 3 cr. Mr. Berzunza.

LATIN

(See LANGUAGES, page 242.)

LAW

(See PRE-LAW, page 111.)

MATHEMATICS

HERMON L. SLOBIN, *Professor*; GEORGE N. BAUER, *Professor Emeritus*; MARVIN R. SOLT, *Associate Professor*; DANIEL C. LEWIS, *Associate Professor*; HORACE A. GIDDINGS, *Associate Professor*; MILTIADES S. DEMOS, *Assistant Professor*; WILLIAM L. KICHLINE, *Assistant Professor*; DAWSON G. FULTON, *Assistant Professor*; DONALD M. PERKINS, *Assistant Professor*; JOHN S. FRENCH, *Instructor*.

1-2. **GENERAL MATHEMATICS.** The elements of Algebra and Trigonometry. Prereq.: One entrance unit of high school math. 3 rec.; 3 cr.

3-4. **THE ELEMENTS OF ANALYTICAL GEOMETRY AND CALCULUS.** A continuation of Mathematics 1-2. Prereq.: Math. 1-2. 3 rec.; 3 cr.

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5, (5)-6. **FIRST YEAR MATHEMATICS.** Algebra, Trigonometry, and Analytic Geometry. Prereq.: See requirements of Math. for admission to College of Technology. 4 rec.; 4 cr.

7, (7)-8, (8). **CALCULUS.** Applications of differentiation and integration; special methods of integration; the definite integral applications of the definite integral to geometry, physics, and mechanics; introduction to sequence and series. Prereq. for 7: Math. 4 or 6. 3 rec.; 3 cr.

10. **ASTRONOMY.** A brief descriptive course. The earth as an astronomical body; the sun and the solar system; the constellations; the stars. Mr. Solt. 3 rec.; 3 cr. Does not count for major credit in Math.

20. **SOLID GEOMETRY.** Elements of Solid Geometry. Mr. Perkins. Prereq.: High school Algebra and Plane Geometry. 2 rec.; 2 cr.

33. **COMMERCIAL ALGEBRA.** Preparation for, and introduction to, mathematics of finance; use of calculating machines. This course is designed to prepare students for Mathematics 34 and 61. Mr. Kichline. Prereq.: Two years of Math. in high school including at least one year of Algebra. 3 rec.; 3 cr.

34. **MATHEMATICS OF FINANCE.** Simple and compound interest, discount, annuities, depreciation, evaluation of securities, building and loan associations, and elements of life insurance. Mr. Kichline. Prereq.: Either Math. 2, 5, or 33. 3 rec.; 3 cr.

51. **ADVANCED CALCULUS, DIFFERENTIAL EQUATIONS, AND THEIR APPLICATION TO ENGINEERING PROBLEMS.** Prereq.: Math. 8. 3 rec.; 3 cr.

52. **A CONTINUATION OF MATHEMATICS 51.** 3 rec.; 3 cr.

54. **VECTOR ANALYSIS.** Vector and Scalar Algebra and Geometry, differentiation and differential operators, applications to electrical theory and to mechanics, dynamics, and hydro-dynamics. Prereq.: Math. 8. 3 rec.; 3 cr.

55-56. **ADVANCED PLANE AND SOLID ANALYTICAL GEOMETRY.** Prereq.: Math. 8. 3 rec.; 3 cr.

57. **THE HISTORY OF MATHEMATICS.** Designed especially for those preparing to teach Mathematics in high school. An historical background and an appreciation of the development of various fields of Mathematics. Prereq.: Math. 8 or 4. 3 rec.; 3 cr.

61-62. **INTRODUCTION TO STATISTICAL METHODS.** Graphical representation of statistical data, frequency distribution, averages, measures of

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dispersion, index numbers, linear correlation, time series. Mr. Kichline. Prereq.: One year of college Math. or its equivalent. 3 rec.; 3 cr.

63-64. ECONOMIC AND SOCIAL STATISTICS. A continuation of 61-62, including a more thorough study of correlation, multiple and partial correlation, time series including trend and seasonal variation and cycles, sampling, variance, tests of significance. Material selected to meet the needs of advanced students and to throw light on statistical research methods. Mr. Kichline. Prereq.: Math. 61-62. 3 rec.; 3 cr.

71-72. ADVANCED ALGEBRA. Matrix theory, including elementary divisors and invariant factors; linear transformations; quadratic bilinear and Hermitian forms; invariants and covariants with geometric applications; and topics from the theory of equations, including symmetric functions, and groups of substitutions. Prereq.: Math. 8. 3 rec.; 3 cr.

MATHEMATICS-EDUCATION (MATH-ED) 91. PROBLEMS IN THE TEACHING OF HIGH SCHOOL MATHEMATICS. The aims and values of secondary school mathematics, the recommendations of the national committee on mathematics requirements, and the State Board requirements; also, the subject matter and the sequence in which it should be presented in both junior and senior high schools, and the various techniques used in teaching secondary school mathematics. Errors, testing program, and remedial teaching. Lectures, assigned readings, and discussions. Mr. Perkins. Prereq.: Math. 8, or 34 and 7. Students preparing to teach mathematics in high school should register for this course. 3 rec.; 3 cr.

COURSES PRIMARILY FOR GRADUATE STUDENTS

101, 102. COMPLEX VARIABLE. The theory of analytic functions of a single complex variable by the methods of Acuchy (integrals), Riemann (derivatives) and Weierstrass (series), conformal mapping and Reimann's surfaces, and the elementary theory of elliptic functions. Mr. Demos. Prereq.: Math. 51. Hours to be arranged. 3 cr.

103, 104. DIFFERENTIAL GEOMETRY. Plane and space curves; first and second differential forms of a surface; theorems of Meusnier and Euler; lines of curvature; asymptotic lines; conjugate lines; geodesics; theorems of Gauss and Codazzi; developable surfaces; Liouville surfaces; problems of mapping. Mr. Giddings. Prereq.: Math. 8. 3 rec.; 3 cr.

105, 106. EDUCATION STATISTICS. A study of the statistical methods dealing with data pertaining to problems in education. The topics to be considered include central tendency, dispersion, linear correlation, non-linear correlation, partial and multiple correlation, the normal probability curve, curve fitting, sampling, and variance. In

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considering the several problems emphasis will be placed on theory and on application to concrete numerical data. Mr. Kichline. Prereq.: Math. 61, 62. 3 rec.; 3 cr.

107, 108. INFINITE SERIES AND PRODUCTS. This course includes selections from the following topics: theories of irrationals; series of positive terms; convergence tests; general series; double series; transformation of series; infinite products; Fourier, Dirichlet, and power series; special series; and divergent series. Mr. Slobin. Prereq.: Math. 51. 3 cr.

109, 110. ANALYTICAL MECHANICS. Statistics and dynamics of particles and rigid bodies. Lagrange's equations. Mr. Solt. Prereq.: Math. 51. 3 rec.; 3 cr.

113, 114. ADVANCED STATISTICS. This course centers about the problem of sampling and includes such topics as the normal distribution and the problem of inference, the chi-square test, the t-test, and a study of variance and covariance. Numerous applications are introduced. A general review of the more important statistical methods is included. Mr. Kichline. Prereq.: Math. 63, 64. Hours and credits to be arranged.

MECHANICAL ENGINEERING

EDWARD L. GETCHELL, *Professor*; LAUREN E. SEELEY, *Professor*; E. HOWARD STOLWORTHY, *Associate Professor*; EDWARD T. DONOVAN, *Associate Professor*; LYMAN J. BATCHELDER, *Instructor, Emeritus*; JOHN C. TONKIN, *Instructor*; ELIAS O'CONNELL, *Instructor*; TENHO S. KAUPPINEN, *Instructor*.

1-2. ENGINEERING DRAWING. Fundamentals, including freehand lettering, use of instruments, isometric drawing, and the solution of problems by the principles of descriptive geometry. Messrs. Stolworthy and Kauppinen. 2 lab.; 2 cr.

3. MACHINE DRAWING. Application of the principles of engineering drawing to machine parts. Various pictorial systems as an aid in sketching. Reproduction methods and modern drafting room organizations. Commercial drafting room methods in sketching machine parts, drawing from sketches, and making tracings. Mr. Kauppinen. Prereq.: M.E. 1. 2 lab.; 2 cr.

4. KINEMATICS. Motion in machine construction; belts and other flexible connectors; gear and gear teeth; wheels in trains; epicyclic trains, cams; instantaneous centers; linkwork, velocity, and acceleration diagrams. Prereq.: M.E. 1, M.E. 2 and Math. 7. 2 rec.; 2 lab.; 3 cr. Mr. Kauppinen.

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5-6. MECHANICAL LABORATORY. An over-all view of the more elementary features of Mechanical Engineering. Introduction of the equipment in the mechanical laboratory and the University Power Plant, and instruction in its use for studying problems found in Mechanical Engineering practice. Mr. Kauppinen. 1 lab.; 1 cr.

7-8. MECHANICS. A study of forces and moment of forces; determination of stresses in trusses and cranes; centroids and center of gravity; rectilinear and curvilinear motion; translation and rotation of bodies; work, power, and energy. The application of mechanics to the determination of stress and strain in rigid bodies. The study of thin walled cylinders; riveted joints; torsion; transverse loading of beams; deflection in beams of all kinds; study of columns; compound stresses as applied to design of machine parts. Work in the second semester to be paralleled by exercises in the materials laboratory. For Juniors in Mechanical Engineering. Mr. Getchell. Prereq.: Math. 8 and Phys. 7. M.E. 7: 4 rec.; 4 cr. M.E. 8: 3 rec.; 1 lab.; 4 cr.

9-10. MECHANICS. Similar to Mechanical Engineering 7-8, but with those portions having application to the design of machine parts omitted. For Junior civil and electrical engineers. Mr. Getchell. Prereq.: Math. 8 and Phys. 7. M.E. 9: 3 rec.; 3 cr. M.E. 10: 3 rec. 1 lab.; 4 cr.

13. ELEMENTARY METALLURGY. A study of ferrous and non-ferrous metals and alloys used in engineering; a survey of the field of metals with particular attention to structure and properties resulting from alloying and heat treatments. Mr. Getchell. Prereq.: Chem. 4. 2 rec.; 2 cr.

15-16. MACHINE DESIGN. Application of the principles of mechanics to the design of machine elements with the idea of manufacturing the parts in the most economical manner in the shops. General principles of design will be followed rather than the development of any particular system of procedure. Mr. Getchell. Prereq.: M.E. 8. 1 rec.; 2 lab.; 3 cr.

17. HEAT TREATMENT LABORATORY. The study of the heat treatment of steel to obtain the proper strength, hardness, and ductility. Methods of determining the carbon content. Mr. Getchell. Prereq.: M.E. 13. 1 lab.; 1 cr.

19. ELEMENTARY DRAFTING. Fundamentals, including lettering, use of instruments, orthographic projection, isometric drawing, architectural symbols, electrical symbols, plumbing symbols, typical hotel floor plans, graphs. Mr. Kauppinen. 2 lab.; 2 cr. for Hotel Administration. Cannot be substituted for M.E. 1.

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21. HEAT POWER ENGINEERING. The fundamental theory of engineering thermodynamics and its applications to steam power plant and internal combustion equipment. For civil engineers. Mr. Kauppinen. Prereq.: Math. 7 and Phys. 8. 3 rec.; 3 cr.

23-24. THERMODYNAMICS. The fundamental laws of thermodynamics and their relation to the operation of mechanisms using gases and vapors as their working substances. For mechanical engineers. Mr. Donovan. Prereq.: Math. 7 and Phys. 7. 3 rec.; 3 cr.

25-26. HEAT POWER ENGINEERING. The laws of thermodynamics and a consideration of steam power plant and internal combustion engine equipment. For electrical engineers. Mr. Stolworthy. Prereq.: Math. 7 and Phys. 7. 25: 3 rec.; 3 cr. 26: 3 rec.; 1 lab.; 4 cr.

27. MECHANICAL LABORATORY. The apparatus and methods of testing power plant operation and equipment. Mr. Donovan. Parallel requirement: Enrollment in M.E. 25-26. 2 lab.; 2 cr.

29-30. MECHANICAL LABORATORY. Methods of investigating operation and testing of power plant equipment. Mr. Donovan. Parallel requirement: Enrollment in M.E. 23. 29: 2 lab.; 2 cr. 30: 1 lab.; 1 cr.

31, (31). AIRPLANES AND AIRCRAFT ENGINES. A study of airplanes and aircraft engines including servicing and operation. Mr. Stolworthy. No prereq. 3 rec.; 3 cr.

37. AERONAUTICS. Elementary aerodynamics and aircraft construction; wind tunnel problems. Mr. Stolworthy. Prereq.: M.E. 8 and C.E. 24. 2 rec.; 1 lab.; 3 cr.

38. METEOROLOGY AND NAVIGATION. Synoptic meteorology and the instruments and methods used in navigation of aircraft. Mr. Stolworthy. Prereq.: Phys. 7. 2 rec.; 1 lab.; 3 cr.

39. HEATING AND AIR CONDITIONING. Heat losses and ventilation requirements of buildings, and the design of specific heating and ventilating systems. Mr. Stolworthy. Prereq.: M.E. 24. 2 lab.; 2 cr.

40. HEATING AND AIR CONDITIONING. Present methods of heating and ventilating buildings. Mr. Stolworthy. Prereq.: Hotel Admin. 21, 22, or Phys. 2. 1 rec.; 1 lab.; 2 cr.

41, (41). AVIATION GROUND SCHOOL. Civil air regulations, meteorology, navigation, servicing of aircraft. Mr. Stolworthy and assistants. No prereq.. 3 rec.; 3 cr.

49. THE THESIS. The thesis embodies research or commercial investigation. Equal emphasis upon composition and accuracy in subject matter. 2 cr. Students passing this course receive a grade of Cr.

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52. MECHANICAL LABORATORY. Performance studies of steam engines and turbines, nozzles, and condensers. Application of the laws of thermodynamics to steam power plant equipment. Mr. Donovan. Prereq.: M.E. 30. 2 lab.; 2 cr.

53-54. POWER PLANTS. A study of the steam generating power plant dealing with its equipment and costs. For mechanical engineers. Mr. Donovan. Prereq.: M.E. 24. M.E. 53: 2 rec.; 2 cr. M.E. 54: 1 rec.; 2 lab.; 3 cr.

55-56. INTERNAL COMBUSTION ENGINES. Thermodynamics applied to spark ignition and compression ignition engines and gas turbines. Fuels, carburetion, fuel injection, combustion chambers, lubrication, cooling, and performance. Mr. Stolworthy. Prereq.: M.E. 8 and 24. 2 rec.; 1 lab.; 3 cr.

59, 60, 61, 62. STUDENT BRANCH OF AMERICAN SOCIETY OF MECHANICAL ENGINEERS. An organization of Junior and Senior students. Preparation and presentation of addresses on Mechanical Engineering topics by members, and criticism by instructor of delivery, subject matter and terms used. Required of Juniors and Seniors in M.E. $\frac{1}{2}$ cr.

65. ENGINEERING ECONOMY. The principles which form the basis of engineering procedures for obtaining the highest ratio of utility to cost. Prereq.: Senior standing. 3 rec.; 3 cr.

66. INDUSTRIAL MANAGEMENT. Principles and methods of industrial management, designed to give students a working knowledge of modern industrial practice, with particular emphasis on the engineering viewpoint. Prereq.: Senior standing. 3 rec.; 3 cr.

71-72. AIRPLANE DESIGN. Airplane layout and stress calculations. Mr. Stolworthy. Prereq.: M.E. 8 and 37 in parallel. 3 rec.; 3 cr. (Not offered in 1946-1947.)

COURSES PRIMARILY FOR GRADUATE STUDENTS

101, 102. ADVANCED THERMODYNAMICS. The general equations of thermodynamics and their application to fluids such as air and steam; heat transmission; current applications and advances in thermodynamics. Mr. Donovan. 3 rec.; 3 cr.

105, 106. ADVANCED MECHANICS OF MATERIALS. To review and show the limitations of the ordinary formulas of strength of materials. To consider the conditions under which these limitations hold and to extend the subject to more complex topics than those previously considered. To present a more detailed study of the concepts and methods used in analysis of stresses in structures and machine members. Further study of stresses in plates, thick cylinders, rotating cylinders,

MECHANICAL ENGINEERING

and shafts; stresses in curved members under flexure; stress concentrations and analysis of stresses in statically indeterminate structures by elastic strain energy and photoelastic methods. Mr. Getchell. Prereq.: M.E. 8. 3 rec.; 3 cr.

MECHANICAL ENGINEERING SHOP COURSES

S1, S2. **ELEMENTARY SHOP PRACTICE.** For shop work Freshmen in Technology are divided into two groups, meeting simultaneously in Forge Shop and Machine Shop. Machine shop: practice in the operation of engine lathes and other machine tools, where precise measurements are important; the machinability of metals in the preparation of test specimens for use in the course on strength of materials. Forge shop: the operations necessary in the forging and welding of iron and steel, in the hardening, tempering, and annealing of steel. (S1 is Forge Shop; S2 is Machine Shop.) Messrs. O'Connell and Tonkin. 2 lab.; 2 cr.

S13, (S13). **FORGE SHOP.** Advanced work in forging, electric, and acetylene welding, tempering, case hardening, tool dressing. Mr. O'Connell. Prereq.: M.E. S1. 2 lab.; 2 cr.

S17, (S17). **MACHINE SHOP.** Continuation of work given in S2. Mr. Tonkin. Prereq.: M.E. S2. 2 lab.; 2 cr. (Not offered in 1946-1947.)

AERONAUTICS

The courses in Aeronautics offered in the Department of Mechanical Engineering are grouped below for convenience. M.E. 41, (41) will be of particular interest to students or secondary school teachers who wish to cover basic ground work in aviation. M.E. 37 and 38 are offered for Mechanical Engineering students wishing to specialize in Aeronautics.

M.E. 31, (31). **AIRPLANES AND AIRCRAFT ENGINES.** (3 cr.)

M.E. 37. **AERONAUTICS.** (3 cr.)

M.E. 38. **METEOROLOGY AND NAVIGATION.** (3 cr.)

M.E. 41, (41). **AVIATION GROUND SCHOOL.** (3 cr.)

M.E. 71-72. **AIRPLANE DESIGN.** (3 cr.)

MEDICINE

(See PRE-MEDICINE, page 117.)

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METEOROLOGY

(See page 222.)

MILITARY SCIENCE AND TACTICS

COL. JAMES C. BATES, *Coast Artillery Corps, Professor*; S/SGT. PHILIP J. WHELAN, *Administrative Assistant*.

ELEMENTARY COURSE, BRANCH IMMATERIAL

1-2. FIRST YEAR, ELEMENTARY. Individual Weapons and Marksmanship; Hygiene and First Aid; Leadership Drill and Exercise of Command; Map and Aerial Photograph Reading; Military Organization; National Defense Act and R.O.T.C.; World Military Situation. Required of Freshmen: Minimum of 3 hours of formal instruction. 3 cr.

3-4. SECOND YEAR, ELEMENTARY. Evolution of Warfare; Leadership Drill and Exercise of Command; Map and Aerial Photograph Reading; Military Administration; Military Law; Physical Development Methods; World Military Situation. Required of Sophomores: Minimum of 3 hours of formal instruction. 3 cr.

ADVANCED COURSE

FIRST YEAR ADVANCED. Leadership Drill and Exercise of Command Military Law and Boards; Military Leadership, Psychology and Personnel Management; Military Problems of the U. S.; Occupied Territories; Tactics and Technique of Infantry (Coast Artillery). Elective Course. Minimum of 5 hours of formal instruction. 6 cr.

SECOND YEAR ADVANCED. Combined and Joint Operations; Command and Staff; Geographical Foundations of National Power; Leadership Drill and Exercise of Command; Military Mobilization and Demobilization; Military Teaching Methods; Psychological Warfare; Tactics and Technique of Infantry (Coast Artillery). Elective Course: Minimum of 5 hours of formal instruction. 6 cr.

MUSIC

KARL H. BRATTON, *Associate Professor*; ROBERT W. MANTON, *Professor*; IRVING D. BARTLEY, *Assistant Professor*; MARGARET OLSON, *Instructor*; GEORGE E. REYNOLDS, *Instructor*.

All the University musical organizations are under the direction of Mr. Karl H. Bratton.

MUSIC

Registration for these courses should be completed during the registration period. These courses cannot be used to satisfy major requirements.

1, (1). UNIVERSITY BAND. Open to all undergraduates on basis of individual tryouts. The University Band furnishes music for the R.O.T.C. drills, all athletic events at home, and also gives concerts during the college year. Prereq.: Permission of the instructor. 2 rec.; 1½ cr.

3W, (3W). WOMEN'S GLEE CLUB. Open to all students interested in singing who fulfill the requirements of a try-out. Recommended for all women voice majors. Prereq.: Permission of the instructor. 2 rec.; ½ cr.

3M, (3M). MEN'S GLEE CLUB. Open to all students interested in singing who fulfill the requirements of a try-out. Recommended for all men voice majors. Prereq.: Permission of the instructor. 2 rec.; ½ cr.

5, (5). UNIVERSITY CHOIR. An advanced choral group devoted to the study and performance of the best classical and modern choral literature. Recommended for men and women voice majors. Prereq.: Permission of instructor. 2 rec.; ½ cr.

7, (7). ENSEMBLE. Small groups of instrumentalists and vocalists organized to provide advanced students experience in such groups as the MADRIGAL SINGERS, string quartets, men's quartets, and women's sextets. Prereq.: Permission of the instructor. 2 rec.; ½ cr.

9, (9). UNIVERSITY ORCHESTRA. Open to all students on basis of individual try-outs. The Orchestra gives several concerts during the year and also accompanies the vocal groups and solo instrumentalists on various occasions. Prereq.: Permission of instructor. 2 rec.; ½ cr.

Only a possible total of 4 credits may be earned in four years by students in musical organizations to be counted towards graduation. An exception to this will be members of the R.O.T.C. Band and Music majors.

APPLIED MUSIC

All candidates for a degree with a major in Music (Applied Music option) must take an entrance examination before the Staff of the Department of Music to be judged as to their competence in becoming Music majors. The examination may be taken any time before the beginning of their Sophomore year.

Lessons in Applied Music are based on ½-hour private instruction. One semester hour of credit will be given for one lesson; two

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semester hours of credit will be given for two lessons. Five one-hour practice periods will be allotted to each student. Necessary supplementary practice periods must be sought out by the music students themselves. The special semester fee for Applied Music is \$25 for one lesson a week, and \$50 for two lessons a week. These fees include the use of a practice room for the required preparation. Organ students will be charged an additional fee for the use of the practice organ.

Majors in Applied Music are required to present eight semester hours in the applied music taken over a period of six semesters. Two lessons per week are required in the Senior year. Two semester credits taken in the Freshman year are regarded as prerequisite to entrance into the Music major field.

Registration in Applied Music is subject to approval by the Head of the Music Department.

23, (23). PIANO. The methods of presentation and the material used vary with the particular needs of each individual pupil. For some students it will be necessary to intensify the technical side of playing, since an inadequate technique obviously is a handicap to a successful expression of musical thought. A number of pieces from the best masters will be studied for the purpose of applying principles of technique as well as gaining for the student an insight into the possibilities of musical expression. Mr. Bartley. 1 or 2 lessons; 1-2 cr.

24, (24). ORGAN. The instruction requires that the pupil have an adequate background of pianistic ability. It includes a fundamental study of the manual touch, pedal technique, the independence of the hands and feet, and elementary and advanced registration. In addition to the normal course of organ study, sight reading, modulation, and improvisation will be emphasized. Mr. Bartley. 1 or 2 lessons; 1-2 cr. (Not offered in 1946-1947.)

25, (25). VIOLIN. Lessons in violin playing are adjusted to the individual needs of the pupil. A sound technical foundation is imparted with special stress on clear, resonant tone production, accurate intonation, fluency, and velocity. Technical exercises, studies, and solos are selected to correct the pupil's deficiencies and to develop and promote his talents and artistic self-expression. Solos are selected from the best violin literature and are studied as concert pieces and also as applications of the numerous items of basic technique. Miss Olson. 1 or 2 lessons; 1-2 cr.

26, (26). VOICE. Instruction in voice will seek to develop those qualities which are essential for intelligent interpretation, such as correct posture, breathing, pure tone, resonance, clear enunciation, and

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technical facility. Each voice is given the treatment best suited to its individual needs. A higher ideal than the perfection of mere mechanical skill is sought, namely a musicianly style of singing and a thorough appreciation of the best works of the masters, both classic and modern. Mr. Bratton. 1 or 2 lessons; 1-2 cr.

27, (27). VIOLONCELLO. The course consists of instruction in tuning, bowing, and in positions, as well as a thorough grounding in technical studies, solos, and ensemble literature. Miss Olson. 1 or 2 lessons; 1-2 cr.

28, (28). WOODWIND. Courses in the technique and literature of clarinet, flute, oboe, bassoon, and saxophone are given. Mr. Reynolds. 1 or 2 lessons. 1-2 cr.

29, (29). BRASS. Instruction will be offered for any of the following instruments: trumpet, trombone, French horn, baritone, and tuba. Correct tone production, articulation, and musical interpretation are stressed. Mr. Reynolds. 1 or 2 lessons; 1-2 cr.

THEORY AND COMPOSITION

11-12. HARMONY. The fundamental principles of the theory of music are embodied in the study of harmony. It treats of the different chords in their natural and combined relationships. The subdivisions are as follows: intervals, triads, inversions of the same, the entire seventh chord family and its inversions together with intensive drill in sight singing, ear training, and melodic-harmonic dictation. Recommended for students who wish to prepare themselves for intelligent listening to music and for participation in music activities such as glee clubs, etc. 5 rec.; 4 cr.

15-16. ADVANCED HARMONY AND COUNTERPOINT. Designed to supplement the technical training begun in Music 11-12. Simple counterpoint in two parts will be studied *parallel* to the acquisition of such new harmonic materials as ninth chords, cadences, chromatically altered chords, suspensions, augmented chords, ornamental tones, pedal point and modulation. Contrapuntal studies will include three-part writing as its final objective. Mr. Manton. Prereq.: Music 11-12. 5 rec.; 4 cr.

31, (31). BATON TECHNIQUE. The use of the baton; simple and complex rhythms; specific problems from various choral and symphonic works; score reading; problems of choral and instrumental technique will be discussed. 2 rec.; 2 cr. (Formerly Music 54.)

51-52. FREE COUNTERPOINT, CANON AND FUGUE. This course will include free counterpoint in three and four parts, double counterpoint,

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the writings of simple two-part inventions, choral preludes, etc. The canonic and fugal studies will be based largely upon the works of Bach and will have as their objectives the composition of fugato, fughetta, a three- and a four-voiced fugue. Mr. Manton. Prereq.: Music 16 or permission of instructor. 2 rec.; 2 cr.

96. COMPOSITION FORM AND ANALYSIS. Form is the foundation, the skeleton and support to imagination and expression in music. Through a study of form and analysis the student, in creating, learns to control his media of expression, or, when listening, to fully appreciate the formal and the free fantasia. The various harmonic and contrapuntal forms, symphonic tone poems etc., will in turn serve as models for analysis. Highly recommended to theory majors. Seminar subject. Prereq.: Music 52 or permission of instructor. 2 rec.; 3 cr. (Not offered in 1946-1947.)

97. ORCHESTRATION. Designed to ground the student in idiomatic writing and technique necessary to score effectively for the modern symphony orchestra and the band. The characteristics, range and tone quality of the instruments; transcriptions with various combinations—strings, wind, and brass. Prereq.: Music 16. 2 rec.; 2 cr. (Formerly Music 53.)

98. CHORESTRATION. The object of this course is to ground the student in the idiomatic technique necessary to write effectively for the human voice. Original pieces, folk song arrangements in the various styles, i.e., for mixed chorus, for men's voices, for women's voices, and also for solo voice with instrumental accompaniment will form the content. Mr. Manton. Prereq.: Music 16. 2 rec.; 2 cr.

HISTORY, LITERATURE, AND APPRECIATION

33, 34. THE APPRECIATION OF MUSIC. Fundamentally a course to develop intelligent listening through formal analysis of the irreducible minimum of great musical masterpieces. A selection of the most important works of Bach, Handel, Haydn, Mozart, Beethoven, Schubert, Mendelssohn, Chopin, Liszt, Brahms, Franck, Tchaikowsky, d'Indy, and many others, analyzed by the students and the instructor and played several times in the classroom. 3 rec.; 3 cr. *This course cannot be used to satisfy major requirements.* (Formerly 13, 14.)

35, (35). SURVEY OF MUSIC IN AMERICA. A comprehensive survey of the development of music in the United States from Colonial times to the present day. The various influences such as the English tradition, the German era, the French impressionistic influence and finally the quest for an American style will be presented and discussed together with the music of the most representative composers. 2 rec.; 2 cr. (Not offered in 1946-1947.)

MUSIC

37, 38. MUSIC HISTORY AND LITERATURE. An intensive study of the actual systems, spirit, and content of the music of the period rather than resumés of biography and critical evaluations. Music of Greece and Rome, the early church, evolution of notation, beginnings of harmony and counterpoint, the Troubadours and Minnesingers, the Netherland and Roman masters of church music, and opera and oratorio, English Madrigalists, beginnings of instrumental music, etc., through the classic composers to Schumann. Lectures, readings, and reports. Mr. Manton. Prereq.: Music 11-12, or 33, 34. 3 rec.; 3 cr. (Not offered in 1946-1947.)

57, 58. MUSIC HISTORY AND LITERATURE. This course supplements Music 37, 38 and continues the study of the great romantic composers and their works, the neoclassicism of Brahms and Franck, the nationalistic group on into the twentieth century with special emphasis upon the works of such composers as Debussy, Ravel, Sibelius, Delius, Vaughan, Williams, Stravinsky, Hindemith, and many others. Lectures, readings, and reports. Mr. Manton. Prereq.: Music 11-12 or 33, 34. 3 rec.; 3 cr. (Formerly Music 47-48.)

NATURE STUDY

(See BIOLOGY, pages 179-185.)

NURSING

(See page 115.)

OCCUPATIONAL THERAPY

These courses are for majors in Occupational Therapy. Schedule as O.T. 1, etc.

O.T. 1. HANDICRAFTS. A series of simple projects using different media and techniques especially adapted to use in the practice of Occupational Therapy. Miss Wilkins. 2 lab.; 2 cr.

O.T. 4. HANDICRAFTS. Stresses the therapeutic use of crafts, such as leatherwork, chip carving, and stenciling. Miss Wilkins. 3 lab.; 3 cr.

O.T. 5, 6. HANDICRAFTS. Covers the use of plastic and synthetic materials, dyeing, chair seating, weaving, and other popular handicrafts used in Occupational Therapy. Miss Wilkins. 3 lab.; 3 cr.

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O.T. 8. PRINCIPLES OF WOODWORKING. Practical experience in the design and construction of wooden articles. Use of working drawings; estimating; selection of stock; care and use of tools; applications of common finishes. Mr. Brett. 2 lab.; 2 cr.

O.T. 9. LETTERING AND PRINTING. Freehand lettering, hand- and power-press printing; operation of various duplicating devices; silk screen process; poster design. A survey of graphic arts methods and processes as employed in Occupational Therapy. Mr. Brett. 2 lab.; 2 cr.

O.T. 15-16. CERAMICS (POTTERY). Design and constructions. Methods of preparing and working clay, and the uses of pottery equipment best suited to application in Occupational Therapy work. Mr. Scheier. 2 lab.; 2 cr.

O.T. 23-24. ELEMENTARY DRAWING AND DESIGN. Exercises in drawing, design, and block printing. Creative activity as a background for craft study and for its therapeutic value. Outdoor sketching. Mrs. Schoolcraft. 2 lab.; 2 cr.

O.T. 45. ELEMENTARY LIBRARY METHODS. A course in library methods giving a brief survey of the detail involved in the management of a small institutional library. Mr. Heaney. 1 lab.; 1 cr.

O.T. 47. THEORY OF OCCUPATIONAL THERAPY. Historical background and evolution of Occupational Therapy. Miss Wilkins. 2 lec.; 2 cr.

O.T. 48. THEORY OF OCCUPATIONAL THERAPY. Techniques used in Occupational Therapy and their application to disease and injury. Instruction trips to hospitals and clinics, and demonstrations. Procurement and care of equipment, materials, and supplies. Miss Wilkins and Miss Moody. 3 lec.; 3 cr.

O.T. 49-50. CLINICAL SUBJECTS. Basic information concerning the etiology, pathology, symptoms, and treatment of disease. Introductory lectures to acquaint students with medical terminology are followed by a study of general medical and surgical conditions, orthopedica, ophthalmology, otology, and psychiatry. Dr. Batchelder and visiting lecturers. Prereq.: Zoöl. 17-18. 2 lec.; 2 cr. (Given in alternate years. Offered in 1946-1947.)

ORAL ENGLISH

(See SPEECH, page 216.)

PAINTING

(See THE ARTS, page 177.)

PHILOSOPHY

PHILOSOPHY

DONALD C. BABCOCK, *Professor.*

Courses in this Department are open to Sophomores, Juniors, and Seniors.

1, 2. INTRODUCTION TO PHILOSOPHY. Designed for orientation in the field of Philosophy, this course gives some time to each of several subjects associated with philosophic thoroughness and breadth of thought. Among these are: (1) ways of acquiring knowledge; forms of logical thought; (2) the nature of ethics; (3) the history of ideas; (4) chief hypotheses concerning the nature of mind and matter. Wherever possible, practical application to the problems of human living will be made. Mr. Babcock. 3 lec. or rec.; 3 cr.

3, 4. ETHICS. Human beings behave as if there were standards by which conduct could be evaluated. What are "values"? What standards are there? What significance have they? Are "right" and "wrong" in any sense universal? How can we find out? This course deals with these questions, but makes application constantly to everyday problems of individual and social living. Mr. Babcock. 3 lec. or rec.; 3 cr.

11, 12. HISTORY OF RELIGIONS. Religion as an historic force in society. The nature of religion, its origins, and early development treated in connection with primitive social history. A study of the principal religions of the world, exclusive for the most part, of Christianity. Chief attention given to Hinduism, Buddhism, Zoroastrianism, Confucianism, and Mohammedanism. The history, literature, and philosophy of the oriental civilizations and culture as a background. Mr. G. R. Johnson. 3 lec. or rec.; 3 cr. (Given in alternate years; not offered in 1946-1947.) (Formerly History 25-26.)

13, 14. HISTORICAL ORIGINS AND DEVELOPMENT OF CHRISTIANITY. The life, literature, religion, and social development recorded in the Old Testament are studied as a cultural background. An investigation of the historic data existing concerning the life, character, and teaching of Jesus. The growth and expansion of the Christian movement. Designed to furnish students an opportunity to evaluate their own religious heritage in the light of contemporary thought, and to make special study of particular intellectual problems. Mr. G. R. Johnson. 3 lec. or rec.; 3 cr. (Given in alternate years; offered in 1946-1947.) (Formerly History 23-24.)

15. PHILOSOPHIC VALUES IN THE BIBLE. A course intended first of all to make the student familiar with the actual contents of the Bible,

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especially its time-honored and formerly commonly quoted passages. Attention will be directed to the relation between the great utterances in the Bible and the persistent problems of human thought and living. All sectarian preference will be excluded. Thoughtful appreciation of a great cultural heritage is the result sought. Mr. Babcock. 2 lec. or rec.; 2 cr.

16: PHILOSOPHIC VALUES IN GENERAL LITERATURE. A continuation of Philosophy 15, except that literature other than that of the Bible will be studied. English and American authors will be chiefly used. The richness of Biblical allusion in secular literature will be noted. The inclusive purpose of the course is to attain familiarity with the literary and philosophic sources of the modern world, and to render them usable in common life. Mr. Babcock. 2 lec. or rec.; 2 cr.

17, 18. THE AMERICAN MIND. Deals with: (1) the character-traits of the American; (2) American social ideologies; (3) American philosophy, especially as revealed in recent and contemporary life and literature; (4) American expressions of religion; denominational varieties and their significance. Stress will largely be on the last part. Mr. Babcock. 2 lec. or rec.; 2 cr.

51, 52. SEMINAR. Intensive study of a selected topic or field. Designed for those who wish to cultivate the philosophical way of life for further self-improvement. Open to students who have had a course in philosophy, or by permission of the instructor. Mr. Babcock. 2 lec. or rec.; 2 or 3 cr.

55, 56. PHILOSOPHY OF HISTORY. (1) Some of the less obvious aspects of chronology; periodizing as a means of interpreting history; (2) historical geography; (3) culture-history, including the historical side of everyday life; (4) the philosophy-of-history proper, or a study of some of the ways in which history as a whole has been viewed, including both deterministic theories and the study of biography. Mr. Babcock. 3 lec. or discussions; 3 cr. (Formerly History 55, 56.)

PHOTOGRAPHY

(See THE ARTS, page 178.)

PHYSICAL EDUCATION FOR MEN

CARL LUNDHOLM, *Professor, Director of Physical Education and Athletics*; HENRY C. SWASEY, *Associate Professor*; PAUL C. SWEET, *Associate Professor*; ANTHONY A. DOUGAL, *Assistant Professor*; EDWARD J. BLOOD, *Instructor*; JAMES W. GLASSFORD, *Instructor*.

REQUIREMENTS: All Freshmen and Sophomore men students and

PHYSICAL EDUCATION

first-year students in the Two-Year Curriculum in Agriculture are required to register for Physical Education. Each student must provide himself with an activity suit consisting of a gray sleeveless jersey, gray trunks, white woolen socks, and rubber-soled tennis or basketball shoes. This suit must be worn at all classes in Physical Education.

31, 32. PHYSICAL EDUCATION. Development of the organic system generally; stimulation of the neuromuscular system through physical activity; encouragement of a proper attitude toward play; development of an appreciation of physical activities as worthwhile leisure-time recreation. Required of Freshmen. 2 periods; $\frac{1}{2}$ cr. Students passing will get a grade of cr.

33, 34. PHYSICAL EDUCATION. Continuation of 31, 32. Required of Sophomores. 2 periods; $\frac{1}{2}$ cr. Students passing will get a grade of cr.

TEACHER PREPARATION COURSES

Required of students registered in the University Physical Education Teacher Preparation Curriculum for Men. Elective for other students by special permission from the Director of Physical Education and Athletics.

23. PRINCIPLES OF PHYSICAL EDUCATION. The aims, objectives, and principles of Physical Education and the historical factors which have influenced the physical life of nations. Mr. Lundholm. 3 lec.; 3 cr.

40. WINTER SPORTS. Instruction and practice in ski jumping, downhill, slalom, and cross country skiing, and snowshoeing. Conditioning of men, waxing of skis, and selection and care of equipment. The organization and management of winter carnivals and other competitions. Special emphasis on methods of teaching skiing. 2 rec.; 2 cr.

45. FOOTBALL. A history of football with consideration of its educational implications and an analysis of the various systems of play. Instruction in team and individual offensive and defensive fundamentals. The rules, theory, strategy, generalship of team play, and the responsibilities of the coach for the physical welfare of the team. 2 rec.; 2 cr.

46. BASEBALL. Theoretical and practical consideration of the basic principles of batting and fielding; the fundamentals of each position; special stress on problems involving team play, coaching methods, physical conditioning, and rules; a history of the game with a consideration of its educational values. 2 rec.; 2 cr.

47. TRACK AND FIELD ATHLETICS. Instruction and practical demonstrations in starting, sprinting, middle distance and distance running,

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relay racing, hurdling, high and broad jumping, pole vaulting, shot putting, discus, hammer, and javelin throwing. Methods of preparing contestants for the various events. 2 rec.; 2 cr.

48. BASKETBALL. History of basketball with a consideration of its educational values. Theory and practice in the fundamentals of individual offense and defense. The various styles of team offense and defense and rules of the game. Problems in handling and conditioning a team. 2 rec.; 2 cr.

61. PROBLEMS OF TEACHING IN PHYSICAL EDUCATION. Methods and materials of instruction, theories of play, and actual practice for the successful teaching of recreational activities in school, on the playground, and in the community. Studies of activities adapted to different levels of maturity. 3 rec.; 3 cr.

63. CARE AND PREVENTION OF INJURIES. Nature and causes of injuries incident to physical activities, the common hazards of play, and preventative measures for children and athletes are discussed. First aid principles are presented. Elective for Seniors who have taken one of the following: Phys. Ed. 40, 45, 46, 47, 48.; and Juniors and Seniors in the O.T. Curriculum. 2 rec.; 2 cr.

65. ADMINISTRATION OF PHYSICAL EDUCATION IN SECONDARY SCHOOLS. The aims and objectives of health and physical education. Organization and supervision of a complete unified program of health and physical education including the legal aspects, intra-mural and inter-scholastic athletics, medical problems, budgeting, financing, maintenance of equipment, publicity programs, and office management. Each student will be given an opportunity to serve on a committee to draw up an original program of health and physical education in a theoretical or actual situation found in some secondary school. Mr. Lundholm. Prereq.: Zoöl. 17-18; Phys. Ed. 23 and 61; and two courses in the coaching of sports. These last may be taken concurrently. 3 rec.; 3 cr.

EDUCATION-PHYSICAL EDUCATION (ED-PE) 93 (93). DIRECTED TEACHING IN PHYSICAL EDUCATION. Given in the Department of Physical Education and Athletics for Men. Prereq.: Zoöl. 17-18; Phys. Ed. 23, and 61. The student must have completed the methods course in the sport which he is directing or take the course concurrently. 2 to 4 cr.

EDUCATION-PHYSICAL EDUCATION. (ED-PE) 94. SUPERVISED TEACHING IN PHYSICAL EDUCATION IN THE FIELD. An opportunity under joint supervision of the Physical Education and Education Departments, to coach athletics in secondary schools and to assist in supervising a recreational program. Prereq.: Zoöl. 17-18. Phys. Ed. 23, 65 and methods courses in those sports in which the student intends to become actively engaged. 2 to 4 cr.

PHYSICAL EDUCATION FOR WOMEN

PHYSICAL EDUCATION FOR WOMEN

MARION C. BECKWITH, *Associate Professor*; EVELYN BROWNE, *Assistant Professor*; CAROLINE S. WOOSTER, *Assistant Professor*; PHYLLIS ONGLEY, *Instructor*; MARY F. HUMPHREYS, *Instructor*; SALLY DUNNING, *Instructor*; JEANNETTE D. WATSON, *Instructor*; PRISCILLA L. RABETHGE, *Instructor*.

The Department of Physical Education for Women aims to develop in each individual the physical, social, and mental qualities which will enable her to meet successfully the demands of modern society. The courses include recreative and leisure-time activities, vigorous team sports and gymnastics, rhythmic and dance activity, and the opportunity to participate in club activities which are provided for the more highly skilled. This program is supplemented by the extra-curricular competition offered by Women's Recreation Association.

REQUIREMENTS. All women students are required to complete at least one credit of physical activity for each of the first six semesters they attend the University. Freshmen women should register for P.E. 1, 2; Sophomores for P.E. 3, 4; and Juniors for P.E. 5, 6. In addition, Freshmen women are required to take Freshman Problems, P.E. 1.5, 2.5. One additional activity (it may be a club) or an academic course within the Department may be elected each semester for additional credit. Except by special permission, the same activity shall not be credited more than twice.

PHYSICAL EXAMINATIONS. Each student must, upon entering, have a physical examination by the University Physician and a posture test by the Physical Education staff. Individual gymnastics is required of each Freshman whose physical condition indicates this need. Students with physical disabilities must follow the same procedure as other students including registration for Physical Education credit. In most cases, modified activities are recommended by the University Physician. Otherwise, theoretical work is assigned by the Department.

MOTOR ABILITY TEST. All students are expected to take the motor ability test at the time of entering the University and at the completion of their Physical Education requirement. This test is also used as a basis for determining club membership and credit for Advanced Instruction. (See Advanced Instruction.)

ADVANCED INSTRUCTION. To provide for the more highly skilled student and to encourage the interest and ability of the less skilled, the Department of Physical Education for Women includes in its program numerous club and interclass activities in which Advanced Instruction is given by a member of the teaching staff.

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Membership: Open to any University student.

Qualifications: Club standards or membership of class squad.

Credit: Upperclassmen may, if the results of the motor ability test show they are qualified to do so, substitute: (1) club activities for their 3 hours of physical education requirement, or (2) interclass activities for their rhythemics.

Clubs: Dance—Instructor, Miss Ongley; Riding—Instructor, Miss Browne; Riflery—Miss Browne; Skating—Instructor, Miss Ongley; W. R. A.—Instructor, Miss Browne and staff.

Women students following any Teacher Training Curriculum in the University are urged to elect for required Physical Education the following activities: Folk dancing, community games, speedball, hockey, basketball, and American country dancing.

REQUIRED COSTUME AND EQUIPMENT. Special gymnasium uniform consists of blue cotton shorts and shirt, cotton fleece warm-up suit, white socks, and regulation gymnasium shoes. Students are required to furnish their own individual equipment for such activities as tennis, contemporary dancing, individual gymnastics, skiing, and skating. Equipment is furnished for golf, fencing, badminton, hockey, archery, lacrosse, and softball.

1.5, 2.5. FRESHMEN PROBLEMS. The art of healthful living. Problems of health, personal appearance, conduct and personality. Required of Freshmen. Miss Beckwith and Mrs. Wooster. 1 lec.; 1 cr.

1, 2; 3, 4; 5, 6. PHYSICAL EDUCATION. Students should register for one activity (meeting two hours a week) from the lists below. One additional hour of fundamentals (Freshmen) or rhythemics (upper-classmen)* will be arranged by the Department. 3 hours; 1 cr.

ACTIVITY COURSES (elect one a quarter)

First Quarter: Archery, badminton, modern dance, hockey, individual gym, riding (elem. + inter. + advanced), soccer, speedball, tennis (elem. + inter.).

Second Quarter: Basketball, badminton, modern dance, community games, individual gym, folk dancing, fencing, bowling, skating, figure skating, skiing (elem.), riflery.

Third Quarter: Basketball, badminton, modern dance, community games, individual gym, Am. country dance, fencing, bowling skating, skiing (elem. + inter.), riflery.

*See Advanced Instruction for substitutions.

PHYSICAL EDUCATION FOR WOMEN

Fourth Quarter: Archery, badminton, modern dance, golf, individual gym, riding (elem. + inter. + advanced), lacrosse, softball, tennis (elem. + inter.).

Required of Freshmen, Sophomores, and Juniors. 3 periods; 1 cr.

7, 8. PHYSICAL EDUCATION. Elec courses from the list under P. E. Ed. 1, 2. Elective for Seniors. 3 hours. 2 cr.

11, 12; 13, 14; 15, 16; 17, 18. PHYSICAL EDUCATION. Elective courses open to Freshmen, Sophomores, Juniors, and Seniors respectively may be chosen from the lists under P. E. Ed. 1, 2. 2 hours; 1 cr.

TEACHER PREPARATION COURSES

Required of students registered in the University Physical Education Teacher Preparation Curriculum for Women.

23. PRINCIPLES OF PHYSICAL EDUCATION. See course description under Department of Physical Education for Men.

24. ORGANIZED CAMPING. The methods, objectives, and purposes of organized camping for groups; standards for organized summer camps, facilities, equipment, food sanitation, health, and safety requirements; departments, programs, and leadership qualifications. Mrs. Wooster. Elective for Sophomores, Juniors, and Seniors. 3 lec.; 3 cr.

36. RECREATION LEADERSHIP. Philosophy of recreation, organization, and administration of social recreation, clubs, and playgrounds; recreation as therapy, application of recreation to postwar situations. Miss Rabethge. Elective for Sophomores, Juniors, and Seniors. 2 lec. or rec.; 1 lab.; 3 cr.

53, 54. SURVEY OF DANCE. A survey of materials and techniques in teaching dance. Includes instruction in social, tap, folk and square dancing and Modern Dance III (composition), as well as a history of dance as an art and as a phase of education. Miss Ongley and Miss Rabethge. Prereq.: Modern Dance I and II. Open to Junior Physical Education majors or by permission of instructor. 1 lec.; 2 lab.; 2 cr.

55. REMEDIAL GYMNASTICS. The adaptation of exercise to individual needs, capacities, and limitations; physical abnormalities and their correction. Theory and technique of massage. Mrs. Wooster. Prereq.: Zoöl. 17-18. 2 lec. or rec.; 2 lab.; 3 cr.

56. HEALTH EDUCATION. A general health course designed to acquaint the student with principles of modern medical treatment in immunity and disease; accident prevention; exercise and fatigue; food in relation to health and problems of growth. Prereq.: Zoöl. 17, 18. 3 lec. or rec.; 3 cr.

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63, 64. THE THEORY AND COACHING OF SPORTS FOR WOMEN. The principles involved in the teaching of team games and lead-up games with emphasis on coaching methods and officiating. Mrs. Watson. Prereq.: Elementary courses in team sports. 2 lec. or rec.; 4 lab.; 3 cr.

66. ADMINISTRATION OF PHYSICAL EDUCATION IN SECONDARY SCHOOLS. Administrative relationships and procedures in the conduct of physical education and health education in the secondary schools. Preparation of general administrative policies; facilities and equipment. Miss Browne. 3 lec.; 3 cr.

73, 74. THE THEORY AND COACHING OF INDIVIDUAL SPORTS FOR WOMEN. A study of the advanced techniques and principles involved in the teaching of tennis, archery, skating, skiing, badminton, fencing, bowling, golf, and swimming. Coaching methods and materials will be emphasized. The history, equipment, courtesies, rules and tactics of each sport will be discussed. Miss Beckwith, Miss Browne. Prereq.: Elementary courses listed above. Open to Senior majors or others by permission of instructor. 1 lec.; 2 lab.; 2 cr.

P.E.-Ed 91. PROBLEMS IN THE TEACHING OF PHYSICAL EDUCATION FOR WOMEN. The organization of a comprehensive program of activities for use from the primary grades through college. 3 lec. or rec.; 2 lab.; 4 cr.

P.E.-Ed 92. DIRECTED TEACHING OF PHYSICAL EDUCATION FOR WOMEN. Opportunity for teaching of Physical Education activities under direction in the elementary and secondary schools. Prereq.: P.E.-Ed 91. 1 lec. or rec.; 2 lab.; 2 cr.

PHYSICS

HORACE L. HOWES, *Professor*; WILLIAM H. HARTWELL, *Associate Professor*; HAROLD I. LEAVITT, *Associate Professor*; HARRY H. HALL, *Assistant Professor*; DUANE F. CARLISLE, *Assistant Professor*.

1-2. INTRODUCTORY PHYSICS. Mechanics; properties of matter; heat; magnetism; electricity; wave motion; sound and light. Demonstration lectures, laboratory, and recitation. A knowledge of high school algebra and plane geometry is essential. 1 lec.; 2 rec.; 1 lab.; 4 cr.

4. ELEMENTS OF PHYSICS. A brief treatment of mechanics and heat; followed by studies in light and electricity. A working knowledge of arithmetic, algebra, and plane geometry is essential. Prereq.: Sophomore standing in Agriculture. 2 lec.; 1 rec.; 1 lab.; 4 cr. (Not given in 1946-1947.)

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5-6. **PRE-MEDICAL PHYSICS.** This course offers the same lectures and recitations as Physics 1, 2 (Introductory Physics). In a separate laboratory, however, special attention is paid to the needs of students in preparation for medical work. 1 lec.; 2 rec.; one 3 hr. lab.; 5 cr.

7-8. **GENERAL PHYSICS.** Mechanics and properties of matter; heat; selected topics in sound and light; electricity and magnetism. Prereq.: Math. 4 or 6 in advance, and Math. 7-8 either in parallel or as a prerequisite. 1 experimental lec.; 3 rec.; Phys. 7, 4 cr.; Phys. 8, 3 cr.

9. **GENERAL PHYSICS LABORATORY.** Open only to students studying, or credited with Phys. 7. Experiments in mechanics and properties of matter, with report writing and curve plotting of data. Appreciation of the laws of Physical Science; the development of laboratory technique, and the estimation of the limitations of scientific experimentation. Prereq.: The same as those for Phys. 7-8. 2 lab.; 3 cr.

10. **GENERAL PHYSICS LABORATORY.** A continuation of Physics 9 to include experiments in heat, sound, light, electricity, and magnetism. Prereq.: Phys. 7 and 9. 2 lab.; 3 cr.

15. **SURVEY OF PHYSICAL SCIENCE.** The fundamental facts and principles necessary for an understanding of such subjects as the earth as an astronomical body and our neighbors in space; the origin of the solar system; the universe as a whole; the nature of matter and energy, heat, light, sound, electricity, radiant energy and atomic structure. Mr. Leavitt. Open to Sophomores preparing to teach in the fields of English, Social Studies, and the Foreign Languages, who may elect this course and Phys. 16 to meet their Physical Science requirements for the degree. 3 lec. or rec.; 3 cr. (Not given in 1946-1947.)

16. **SURVEY OF PHYSICAL SCIENCE.** The fundamental facts and principles necessary for an understanding of such subjects as the constitution of matter, physical changes, chemical changes, communication, the uncontrolled changes or geological evolution of our physical environment, the climate and weather. Mr. Leavitt. Open to Sophomores preparing to teach in the fields of English, Social Studies, and the Foreign Languages. 3 lec. or rec.; 3 cr. (Not given in 1946-1947.)

41-42. **INTERMEDIATE PHYSICS.** A general survey of Physics in which free use is made of the methods of Calculus. The course is designed to introduce the student to the topics of mechanics, heat, light, sound, and wave motion in a more rigorous manner than is possible in the elementary presentations. Prereq.: Math. 7-8; Phys. 1, 2 or Phys. 7, 8. 2 lec.; 1 rec.; 3 cr. (Not given in 1946-1947.)

51. **THEORY OF ELECTRONS.** The theory of electricity including the passage of a current through a gas, the mobility of ions, the determination of charge and mass of the electron, ionization by collision, the

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corona discharge, cathode rays, positive rays, thermionic emission, photo-electricity and X-rays. Prereq.: Phys. 7-8, Math. 7-8. 2 lec.; 2 cr.

54. ACOUSTICS. The principles of sound origins, propagation, and reception applied. Lectures and recitations. Prereq.: Phys. 1, 2 or Phys. 8 and 10. 3 lec.; 3 cr.

55. EXPERIMENTAL PHYSICS. Designed to augment the student's knowledge of the theory and performance of optical instruments; to improve his laboratory technique in precision measurements. The fundamental physical theories underlying the phenomena of refraction, interference, diffraction, and polarization will be discussed in the lecture periods. Prereq.: Phys. 2 or 8; Math. 7-8. 2 lec.; 1 lab.; 4 cr.

56. MODERN EXPERIMENTAL PHYSICS. Measurement of the charge on the electron by the Millikan oil drop method; of e/m by cathode ray deflection; of Planck's constant by the investigation of photoelectric cells and various other quantities will be taken up. The first portion of the laboratory work is planned to acquaint the student with the laboratory techniques of modern Physics. A part of the course will consist of a development project for each student. Prereq.: Phys. 1, 2; Math. 7-8. 2 lec.; 1 lab.; 4 cr. (Not given in 1946-1947.)

*57-58. INTRODUCTION TO THEORETICAL PHYSICS. Equation of motion in particle dynamics and typical problems; simple harmonic motion; small oscillations; damped and forced oscillations; some rigid dynamics; normal coordinates; vibrating string; elasticity; heat flow; electrostatics; potential theory; energy in electromagnetic field; waves; dispersion; Huygens' principle. Prereq.: Math. 7-8; either Phys. 1, 2 or Phys. 7, 8; Phys. 41, 42 or equivalent. 2 lec.; 1 rec.; 3 cr. (Not given in 1946-1947.)

*61. ELECTRICITY AND MAGNETISM. Intended to give a theoretical background for the understanding of electrical phenomena, and a foundation for the study of electrical measurements. Electrostatics, magnetostatics, Kirchhoff's laws, fields associated with currents, alternating currents, complex impedance, free and forced oscillations of a simple circuit, thermoelectricity, characteristics of vacuum tubes. Prereq.: Phys. 7-8; Math. 7-8. 3 lec.; 3 cr.

64. ELECTRICAL MEASUREMENTS. Experiments on the use of precision potentiometers, the constants of sensitive galvanometers, low resistance by the Kelvin double bridge, high resistance by the method of leakage and by direct deflection, the use of alternating current bridges for measuring capacity, self and mutual inductance and frequency, the

*Course to be given at the discretion of the Head of the Department.

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characteristics of certain photoelectric cells. Prereq.: Phys. 8 and 10. 1 lec.; 1 lab.; 3 cr.

*65-66. MOLECULAR PHYSICS. An introduction to kinetic theory of gases, thermodynamics, and statistical mechanics as applied to physical and chemical problems. Prereq.: Phys. 1, 2 or Phys. 7, 8; Math. 7-8. 3 lec.; 3 cr. (Not given in 1946-1947.)

71-72. PHYSICS SEMINAR. Selected subjects in modern and classical Physics are discussed before the seminar. Each student presents at least one paper per semester. Prereq.: Math. 7-8; Phys. 7, 8; general scientific maturity. 1 lec.; 1 cr. (Not given in 1946-1947.)

73-74. THESIS. A topic for experimental investigation will be assigned each student and a thesis covering the reading and the observations will be required. Prereq.: Phys. 41, 42, and permission of Department Head. (Not given in 1946-1947.)

GENERAL SCIENCE-EDUCATION. (GEN. SCI-ED) 91. PROBLEMS IN THE TEACHING OF GENERAL SCIENCE. Units of subject matter presented in the form of lecture-demonstrations and discussions, accompanied by assigned readings. The objectives and methods of teaching general science developed with the subject matter presentations. Opportunity for students to participate in the lecture demonstrations. Mr. Leavitt. 3 lec. or rec.; 3 cr.

COURSES PRIMARILY FOR GRADUATE STUDENTS

101, 102. INTRODUCTION TO ATOMIC PHYSICS. A course of lectures with accompanying problems and outside reading treating the following subjects: The fundamental experiments and equations of static and dynamic electricity leading to the electromagnetic theory of Maxwell; various experimental methods of determining the Avogadro number by diffusion, Brownian movement, and measurement by dielectric constant; radiation from accelerated charges, and special relativity; various black body radiation laws and the quantum hypothesis; the Bohr postulates and hydrogenic solution of the Schrodinger equation. Time permitting, other topics will be discussed depending on the interests of the class, such as the photo electric effect, the quantum theory of specific heats, or the electron theory of metallic conduction. Mr. Hall. Prereq.: Phys. 57, 58. 3 lec.; 3 cr.

104. LUMINESCENT RADIATION. Lectures descriptive of experimental researches in the luminescence of solids; with some attention to the luminescence of gases, and non-blackbody radiation in general. Mr. Howes. Prereq.: Phys. 7, 8, 9, 10, 14, or the equivalent. 3 lec.; 3 cr.

*Course to be given at the discretion of the Head of the Department.

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105, 106. **ELECTRIC OSCILLATIONS AND ELECTRIC WAVES.** Free and forced oscillations of coupled circuits, applications of Fourier's theorem to steady state and transient response of networks, Maxwell's field equations, free and guided waves, reflection, refraction, absorption, application to shielding, waves on wires, wave guides, radiation. Mr. Hall. Prereq.: Phys. 7, 8, 61; Math. 51-52.

POLITICAL SCIENCE

(See GOVERNMENT, pages 223-226.)

POULTRY HUSBANDRY

T. BURR CHARLES, *Professor*; FRED E. ALLEN, *Assistant Professor*; ALAN C. CORBETT, *Assistant Professor*; RICHARD C. RINGROSE, *Assistant Professor*.

2. **FARM POULTRY.** The general principles of Poultry Husbandry and their practical applications with emphasis on factors of culling, breeding, housing, feeding, marketing, diseases and parasites, incubation and management. Mr. Charles, Mr. Ringrose. (Formerly given as P.H. 5.) 2 lec.; 1 lab.; 3 cr.

6. **POULTRY FEEDING.** The principles of feeding; analysis of recent experimental work and current feed problems. Each student will care for a group of birds for several weeks for practical observation and collection of data. Mr. Ringrose. (Formerly given as P.H. 20.) 2 lec.; 1 lab.; 3 cr.

8. **POULTRY HOUSING.** Design and construction of poultry houses and equipment; costs of materials; management principles. Mr. Charles. (Formerly given as P.H. 22.) 1 lec.; 1 lab.; 2 cr.

17. **POULTRY BREEDS AND JUDGING.** The origin, history, and classification of breeds. Theory and practice in judging fowls for egg production and exhibition and for intercollegiate contests. Mr. Ringrose. 2 lec.; 1 lab.; 3 cr.

18. **INCUBATION AND BROODING.** The principles involved in incubation and brooding of poultry; embryonic development. Students individually operate incubators and care for groups of chicks. Mr. Charles, Mr. Ringrose. 2 lec.; 1 lab.; 3 cr.

19. **POULTRY MARKETING.** The preparation of poultry and eggs for market. Egg qualities and grades, candling and packaging; egg and

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poultry market conditions; practical instruction in killing, picking, and dressing. Mr. Ringrose. 2 lec.; 1 lab.; 3 cr.

24. **POULTRY PRACTICE.** Practical work at the University Poultry Plant in the hatching, rearing, and care of chickens. Mr. Charles. Ten hours a week of practical work. 4 cr. (NOTE: By permission, students with previous practical poultry experience may substitute 4 semester credits of electives for this course.)

25. **POULTRY DISEASES.** The anatomy of the fowl; diseases and parasites encountered in poultry practice; methods of prevention and control. Mr. Corbett. 3 lec.; 1 lab.; 4 cr.

26. **POULTRY MANAGEMENT.** The application of successful business principles to poultry farming; study of surveys and production costs. As a part of the laboratory work, a detailed "three year" development plan of a poultry farm will be studied. Mr. Charles, Mr. Ringrose. (Formerly given as P.H. 23.) 2 lec.; 1 lab.; 3 cr.

27, 28. **POULTRY SEMINAR.** Students abstract experimental data and report on various current poultry topics. Thesis required. Mr. Charles, Mr. Ringrose. 1-hour conference; 1 cr.

29. **POULTRY BREEDING.** The genetic principles involved in breeding for egg production, including practical application and demonstration. Mr. Charles, Mr. Ringrose. (Formerly given as P.H. 16.) 2 lec.; 2 cr.

53, 54. **POULTRY PROBLEMS.** Students are given a selection of various problems and are required to compile and present accurate and detailed information in their solution. Mr. Charles, Mr. Corbett, Mr. Ringrose. 1 to 3 cr.

56. **TURKEY BREEDING AND PRODUCTION.** Subject matter covered includes breeds and their commercial importance; breeding methods, including the National Turkey Improvement Plan and Record of Performance; brooding and rearing methods; feeding, housing, and management practices. Mr. Charles. 2 rec.; 2 cr.

COURSES PRIMARILY FOR GRADUATE STUDENTS

101, 102. **ADVANCED POULTRY DISEASES.** A study of the cause and effects of disease applied to the body as a whole. Lectures supplemented by laboratory demonstrations of the basic pathology of diseased tissue. A detailed discussion of diagnosis, prevention, control and treatment of poultry diseases. Mr. Allen and Mr. Corbett. Prereq.: Poultry Husbandry 25, Bact. 2; and Zoöl. 53 and 54. (Zoöl. 53, 54 may be taken simultaneously with Poultry Husbandry 101, 102.) 3 lec.; 3 cr.

103, 104. **ADVANCED POULTRY SCIENCE.** A comprehensive study of

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(1) the inheritance of morphological and physiological characters in poultry; (2) problems involved in the production, processing and sale of poultry products, and (3) the study of metabolism and physiology of digestion with special emphasis on mineral needs and deficiency diseases of poultry. Mr. Charles and Mr. Ringrose. Prereq.: Poultry Husbandry 29, 19, and 6, or their equivalent. 2 lec.; 1 lab.; 3 cr.

105, 106. SEMINAR. A survey of recent literature and research in poultry husbandry. Department Staff. 1 cr.

107, 108. POULTRY PROBLEMS. Students are given a selection of various problems and are required to compile and present accurate and detailed information in their solutions. Hours and credits not to exceed three, are to be arranged.

PRE-DENTAL

(See page 110.)

PRE-LAW

(See page 111.)

PRE-MEDICINE

(See page 117.)

PSYCHOLOGY

HERBERT A. CARROLL, *Professor*; GEORGE M. HASLERUD, *Associate Professor*; ELMER D. WEST, *Associate Professor*; RUTH B. KELLY, *Instructor*; DANIEL G. DITTMER, *Instructor*.

Except for Psychology 1, 2, courses in this Department are not open to Freshmen.

1, (1). ELEMENTARY GENERAL PSYCHOLOGY. An introductory course designed to familiarize the student with fundamental concepts of human behavior. Emphasis is placed on the functional applications of basic principles. The principal topics discussed are: motivation and human needs, learning, individual differences, emotion, and personality adjustments. Miss Kelly. Open to Freshmen and Sophomores only. 3 lec.; 3 cr. (Formerly Psych. 11.) *This course cannot be used to satisfy major requirements.*

2, (2). ADVANCED GENERAL PSYCHOLOGY. A systematic study of

PSYCHOLOGY

Psychology as a science with emphasis on the experimental evidence for generalizations about behavior, including attention to topics of intelligence, personality, motivation, emotion, learning, memory, sensation, perception, thinking, dreaming, and the nervous system. Mr. Haslerud. Prereq.: Psych. 1. 3 lec.; 3 cr. (Formerly Psych. 31.)

33. INDUSTRIAL PSYCHOLOGY. A study of the fundamental principles of Psychology in a setting of direct application to problems met with in business and industry. Mr. Haslerud. 3 lec.; 3 cr.

47, (47). MENTAL HYGIENE. An examination of the fundamental emotional satisfactions desired by human beings and a consideration of the several ways in which these desires are thwarted. The mental conflicts growing out of such thwartings and ways of resolving them will be the central theme of the course. Specific application of the principles of mental health will be made to the problems of college students. Mr. Carroll. 3 lec.; 3 cr.

48. PSYCHOPATHOLOGY. The distortion of the psychological functions of perception, association, memory, judgment, and thinking as found in the maladjusted individual in need of institutional care. The symptoms distinguishing the various types of mental disorders and the more common forms of the psychoses and neuroses are presented to enable the student to recognize typical cases. Mr. Haslerud. Prereq.: Psych. 47. 3 lec.; 3 cr.

51. PSYCHOLOGY OF CHILDHOOD. The mental processes and reactions of the normal child from birth to adolescence studied in order to obtain a comprehensive understanding of the development of the personality of the child. Special emphasis is placed on problems of parents and teachers and the importance of childhood for later adjustment. Mr. Haslerud. Prereq.: Psych. 1. 3 lec.; 3 cr.

57. EXPERIMENTAL PSYCHOLOGY. A study of experimental work in Psychology, supplemented by class experiments. Emphasis will be placed on scientific method and experimental procedure. Mr. Haslerud. Prereq.; Psych. 2. 2 lec.; 2 lab.; 3 cr.

58. PSYCHOLOGY OF LEARNING. A study of the principles and theories of learning and forgetting and their application to habit formation, social learning, and educational problems. Mr. Haslerud. Prereq.: Psych. 2. 3 lec.; 3 cr.

62. PSYCHOLOGY OF PERSONNEL. The application of Psychology to personnel management in business and industry. The use of intelligence, trade, and aptitude tests and interest questionnaires in employment. The development and maintenance of morale through efficiency methods, favorable conditions of work, and intelligent leadership. Mr. Haslerud. Prereq.: Psych. 33. 3 lec.; 3 cr.

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63. **INDIVIDUAL DIFFERENCES.** A study of individual differences with special emphasis on intellectually gifted and mentally subnormal children. Mr. Carroll. Prereq.: Psych. 2. 3 lec.; 3 cr.

67. **PRINCIPLES OF MEASUREMENT.** A study of the problems involved in objectively measuring mental aptitudes and the results of learning by means of informal and standardized group tests. Special attention will be given to the statistical interpretation of scores. Mr. Carroll. Prereq.: Psych. 2. 3 lec.; 3 cr.

68. **INDIVIDUAL MENTAL TESTING.** Demonstrations and experience in the administration of individual intelligence tests. Major attention will be given to the Terman-Merrill Revision of the Binet-Simon Scales. Mr. Carroll. Prereq.: Psych. 67. 3 lec.; 3 cr.

74. **PSYCHOLOGY OF PERSONALITY.** The course is concerned with the study of the attitudes and motives of the individual. Attention will be given to attempts to classify personality and temperament and methods of measuring personality traits. Mr. Haslerud. Prereq.: Psych. 2. 3 lec.; 3 cr.

77. **PHYSIOLOGICAL PSYCHOLOGY.** A study of the organic bases of behavior. Psychologically relevant topics concerning the nervous system, endocrine glands, sense organs, etc., will be considered. Mr. Haslerud. Prereq.: Psych. 2. 3 lec.; 3 cr.

82. **CLINICAL PROBLEMS.** An examination of the objectives, theories, and methods of psychological counseling. Mr. Carroll. Prereq.: Psych. 47. 3 lec.; 3 cr.

98. **SEMINAR IN PSYCHOLOGY.** Mr. Carroll. Prereq.: 15 semester credits in Psych. 3 cr.

COURSES PRIMARILY FOR GRADUATE STUDENTS

101. **SYSTEMATIC PSYCHOLOGY.** A critical examination of the points of view of the various schools of psychology. Mr. Carroll. Prereq. 18 credits in Psychology. cr.

104. **HABIT FORMATION.** A consideration of problems involved in applying theories of learning to the acquisition of cultural patterns, social habits, and personality traits. Mr. Haslerud. Prereq. 18 credits in Psychology. 3 cr.

181, 182. **READING AND RESEARCH IN PSYCHOLOGY.** With the advice and consent of the instructor, a student prepared by training and experience to do independent work may register for a reading and research course. The student will undertake assigned problems and readings under the guidance of the instructor. Hours and credits by arrangement. Mr. Carroll and Mr. Haslerud.

SOCIAL SCIENCE

PUBLIC SPEAKING

(See page 216.)

RADIO

(See page 216.)

RELIGION

(See courses in Department of Philosophy, page 259.)

SECRETARIAL STUDIES

(See page 199.)

SOCIAL SCIENCE

The four courses listed are given under the auspices of the Division of Social Science of the Faculty of the College of Liberal Arts. This Division includes the Departments of Economics and Business Administration, History, Government, Psychology, and Sociology.

51. **SOCIAL STATISTICS.** A course primarily for the Social Science student designed to acquaint him with the place of Statistics in the Social Science field and to bring out the significance of Statistics as an instrument of research. The course will cover the meaning and interpretative use of the most commonly employed statistical symbols and terminology and the applications of these to the various Social Science fields. Those interested in Mathematical Statistics should take Math. 61-62. Mr. Kichline and Mr. Bachelder. 3 lec. or lab.; 3 cr.

79, 80. **SEMINAR IN STATE PROBLEMS.** A research course in problems of current import to this state taught by staff members in the Division of Social Science. Hours arranged; 1-6 cr.

81, (81). **UNDERGRADUATE INTERNESHIPS.** Actual field work in a department of the state or local government. The work will be in charge of the department or agency to which the student is appointed. Arrangements for each student will be in charge of the Head of the Department involved or his representative. Prereq.: Background work for the internships, substantial work in Govt., Econ., B. Ad., Hist., or Soc. For Juniors and Seniors. Not more than 16 credits. No more than 9 credits may be counted toward the completion of major requirements.

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SOCIAL SERVICE

(See page 279.)

SOCIOLOGY

CHARLES W. COULTER, *Professor*; JOSEPH E. BACHELDER, JR., *Associate Professor*; HERBERT J. MOSS, *Assistant Professor*.

1. PRINCIPLES OF SOCIOLOGY. The underlying laws of human society, especially those governing the origin, growth, and decline of institutions; group relationships to biological and geographic environments; social processes such as conflict, competition, imitation, accommodation, co-operation, assimilation, and differentiation; societal isolation; culture, its organization, content, location, and formation; social institutions, including the familial, religious, economic, educational, recreational, and political; social change with its attendant maladjustments, and control. Mr. Moss. 3 lec. or rec.; 3 cr. *This course cannot be used to satisfy major requirements.*

2. SOCIAL PSYCHOLOGY. The social aspects of the development and functioning of the personality, analysis of the processes through which the individual's impulses are shaped and confined by the cultural patterns of the group, and of the factors which determine attitudes, wishes, habits, and social roles; a critical evaluation of the various methods used at present for the study of human nature. 3 lec. or rec.; 3 cr. *This course cannot be used to satisfy major requirements.*

22. AMERICAN POPULATION PROBLEMS. A course dealing with the growth, distribution, mobility and ecology of population in the United States. Statistical estimates will be made of the significance of such population factors as: age, sex, race, religion in sectionalization, social coherence and other social problems. 3 lec. or rec.; 3 cr.

33. CULTURAL ANTHROPOLOGY AND ETHNOLOGY. (1) A comparative study of primitive folk-ways, institutions, and social organization, marriage, economic activities, religion, property inheritance and folklore; culture and the principles of its development; the significance of primitive culture for an understanding of contemporary civilization. (2) A comparative study of peoples; environmental factors, societal effect of invasion, colonization, and linguistic fusions; race and class struggles; jingoism, race relations in mid-European territory and in the Far East; the problem of world peace. Mr. Coulter. Prereq.: Soc. 1 and 2, or by special permission. 3 lec. or rec.; 3 cr. (Formerly Soc. 53.)

34. THE IMMIGRANT AND THE NEGRO. Negro and immigrant heritage; problems of assimilation and Americanization. Intensive study of

SOCIOLOGY

selected groups, the Negro, the Jew, the Italian, the Pole, the Greek, the French-Canadian, and the Japanese. Mr. Coulter. Prereq.: Soc. 1 and 2, or by special permission. 3 lec. or rec.; 3 cr. (Formerly Soc. (54.)

37. URBAN AND RURAL SOCIOLOGY. The foundation materials for the study of both urban and rural life; the physical setting, population shifts, contrasting incomes, habits, attitudes, the significance of the improvement of means of communication, factors involved in the rapid growth of cities since 1800: physical structure of the city; processes of internal growth of city areas. Soc. 1 and 2 or by special permission. 3 lec. or rec.; 3 cr. (Formerly Soc. 57 and 60).

40. URBAN SOCIOLOGY. The changes in community life that have come with the shift of population from rural districts; factors involved in the rapid growth of cities since 1800; physical structure of the city, processes of internal growth; the segregation which makes of the city a mosaic of distinct cultural worlds; increase in mobility which multiplies social stimuli; typical areas within the city—foreign colonies, rooming house districts, apartment and hotel areas, outlying areas of homes; the effect of the city upon community life, the family, church, school, unorganized group behavior, attitudes and life organization of the person. Prereq.: Soc. 1 and 2. (Not offered.)

41. SOCIAL PATHOLOGY. The social factors involved in alcoholism, blindness, deafness, sickness, illness, accidents, mental deficiency, mental disorder, drug addiction, prostitution, poverty, and vagrancy. The relation of personal, institutional, and community disorganization to social and individual pathologies. Remedial measures based upon a discussion of human nature and the physical conditions of modern life. Especially recommended for Pre-medical, Pre-legal, and other students who will be handling social variants in their professions. Mr. Bachelder. Prereq.: Soc. 1 and 2. 3 lec. or rec.; 3 cr. (Formerly Soc. 61.)

42. COMMUNITY ORGANIZATION. Town and country community organization with respect to natural and interest groupings; the survey; methods of analyzing problems of community organization; methods of utilizing institutions and equipment in the development of programs and organizations for health, recreation, general welfare, and control. Mr. Bachelder. Prereq.: Soc. 1 and 2, or by special permission. 3 lec. or rec.; 3 cr. (Formerly Soc. 62.)

71. CRIME AND ITS SOCIAL TREATMENT. The increase, extent, and more popular theories of crime and delinquency, juvenile and adult. Case studies of individual delinquents with special reference to the influence of family and neighborhood environments; typical social situations and their influence; programs for the social treatment of

UNIVERSITY OF NEW HAMPSHIRE

crime, the reorganization of reformatory institutions, classification of offenders for separate treatment, the "honor system," limited self-government, parole and probation, and the juvenile court as agencies for the prevention of delinquency. Mr. Coulter. Prereq.: Soc. 1 and 2, or by special permission. 3 lec. or rec.; 3 cr.

72. THE FAMILY. The rise of the marriage institution and the family. Divorce, desertion, changing status of women, child welfare, child labor laws, and related modern problems. Mr. Coulter. Prereq.: Soc. 1 and 2, or by special permission. 3 lec. or rec.; 3 cr.

73. PRINCIPLES OF SOCIAL CASE WORK. The present trend in family case work; the techniques of interviewing, diagnosis, treatment and case recording; the significance of present day relief practices. Mr. Coulter. Prereq.: Soc. 1 and 2. 3 lec. or rec.; 3 cr.

75. METHODS OF SOCIAL RESEARCH. The application of the historical survey, statistical and case methods to social data; the use of bibliography, definition, and selection of the problem, determination of the data needed, collection and arrangement of data for presentation and exposition. Mr. Bachelder. Prereq.: Soc. 1 and 2, for majors in Sociology; without prerequisite for other students in Division of Social Science. 3 lec. or rec.; 3 cr.

84. METHODS OF SOCIAL PROGRESS. Efforts to improve social conditions and attain a larger measure of social justice; community experiments; development of modern social legislation; application of principles of insurance to social problems; various forms of mutual aids and philanthropy; endowments and special foundations. Mr. Coulter. Prereq.: Soc. 1 and 2. 3 lec. or rec.; 3 cr.

87. THE CHURCH IN AMERICAN SOCIETY. Contemporary organizations for worship in the community, their correlation, functions, and problems; the rise of the church and its relation to labor, the state, school, social welfare agencies; significance to the community of its organization and financing; church federation and union. Mr. Coulter. Prereq.: Soc. 1 and 2. 3 lec. or rec.; 3 cr.

88. RECREATION AND LEISURE. Problems arising from the increase of leisure time in modern society; typical leisure-time activities; theories of play; practical training programs in recreation; the function of leadership; analysis of types and qualities of leadership as exhibited by typical leaders; the material and program of leadership training. Mr. Bachelder. Prereq.: Soc. 1 and 2. 3 lec. or rec.; 3 cr.

89-90. DEVELOPMENT OF SOCIOLOGICAL THOUGHT. The history of sociological thought, with special reference to the writings of Comte, Spencer, and the later writers of the nineteenth century; a comparison

SOCIOLOGY

of contemporary sociological systems. Prereq.: Soc. 1 and 2. 3 lec. or rec.; 3 cr.

95, 96. SOCIOLOGICAL RESEARCH. A workroom course. Research projects will be set up in conference with the instructor and worked out individually or in groups. Emphasis is placed on techniques of gathering data and on presentation of the findings. Mr. Bachelder. Prereq.: 12 credits in Sociology including Soc. 75. 3 cr.

97, 98. SOCIAL SERVICE FIELD WORK. Designed to give the student an understanding of social work through observation and participation. Lectures, readings, and conferences will be offered during the college year. The field work requirement may be satisfied either during the college year in co-operation with neighboring social agencies or during the summer by eight weeks' work with other accredited social work institutions. The Department will arrange for a limited number of student summer placements with well supervised settlements, correctional institutions, and case work agencies in Chicago, Cleveland, Pittsburgh, Boston, and other urban centers. It is strongly recommended that students who can qualify should acquire this experience in the summer following the Junior year. In most cases agencies offer no remuneration beyond living expenses. Mr. Coulter. Prereq.: 12 credits of work in Soc. 3 cr.

The Departments of Economics, Agricultural Economics, Government, History, Mathematics and Sociology offer jointly a course designed to meet the needs of those Social Science students who are interested primarily in Statistics as applied to the Social Science fields. See Social Statistics 51, page 275.

COURSES PRIMARILY FOR GRADUATE STUDENTS

107. SOCIAL TRENDS. A study of the nature of social change; media in which it takes place; facilitating or retarding factors; differential rates of change among institutions; social lag; contemporary American ameliorative movements looking toward the improvement of the lot of the working man; public welfare programs; social security and social legislation. Mr. Coulter. Permission of the instructor. 3 lec. or rec.; 3 cr.

181, 182. READING AND RESEARCH IN SOCIOLOGY. With the consent of the instructor, a student prepared by training and experience to do independent work may register for a reading and research course. The student will undertake assigned problems and readings under the guidance of the instructor.

Social Control—Mr. Coulter; Consumer Credit—Mr. Coulter; Social Disorganization—Mr. Bachelder; Research Technique—Mr. Bachelder.

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SPANISH

(See LANGUAGES, page 243.)

SPEECH CORRECTION

(See page 216.)

STENOGRAPHY

(See page 199.)

TEACHER PREPARATION

(See pages 205-208.)

THERAPY

(See OCCUPATIONAL THERAPY, page 183.)

TYPING

(See page 199.)

ZOÖLOGY

(See page 183.)

SUMMARY OF REGISTRATION

	AGRICULTURE				LIBERAL ARTS				TECHNOLOGY				MISCELLANEOUS				MEN				WOMEN				BOTH			
	1944-45	1943-44	1942-43	1941-42	1944-45	1943-44	1942-43	1941-42	1944-45	1943-44	1942-43	1941-42	1944-45	1943-44	1942-43	1941-42	1944-45	1943-44	1942-43	1941-42	1944-45	1943-44	1942-43	1941-42	1944-45	1943-44	1942-43	1941-42
Senior	2	4	29	289	171	136	227	289	11	38	91	65	...	...	...	222	158	121	130	161	184	178	344	383	184	178	344	383
Junior	4	1	20	259	157	172	259	298	13	12	81	100	...	...	...	214	146	156	145	149	174	185	360	435	174	185	360	435
Sophomore	5	9	38	33	241	201	314	324	13	28	123	105	...	...	...	215	208	184	199	171	259	238	475	662	259	238	475	662
Freshman	15	15	54	52	422	316	415	400	102	71	264	148	...	...	...	305	330	269	228	228	539	402	733	600	539	402	733	600
Special	2	5	7	7	28	34	35	80	1	3	10	6	...	...	...	36	27	29	23	58	31	42	52	93	31	42	52	93
Graduate .....	...	...	...	...	...	...	...	...	...	...	...	...	27	38	65	125	13	18	20	29	27	38	65	125	27	38	65	125
Total—regular curricula	28	34	145	158	1019	859	1250	1391	140	152	569	424	27	38	65	125	331	304	275	1288	883	779	754	810	1214	1083	2029	2098
Non-degree curricula	3	1	11	18	12	9	...	...	...	...	...	...	...	...	...	15	12	9	...	3	15	10	11	18	15	10	11	18
2nd yr.	14	5	20	25	30	22	21	...	...	...	...	...	...	...	...	23	32	22	19	2	44	27	41	25	44	27	41	25
1st yr.	17	6	31	43	42	31	21	...	...	...	...	...	...	...	...	38	44	31	19	5	59	37	52	43	59	37	52	43
Total	42	43	18	...	...	...	...	...	...	...	...	...	620	778	586	479	210	310	266	192	410	468	320	287	620	778	586	479
Vocational Agriculture	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15	...	...	...	...	...	...	...	...	...	...	...	...
Summer School	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
U. S. War training courses	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
On campus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Off campus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total War training	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Extension courses	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total—short curricula	59	49	49	43	42	31	21	...	...	...	...	...	1154	1474	1404	1548	703	839	922	1229	522	715	552	362	1255	1554	1474	1591
STAR Unit	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
ASTP	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
ASTP	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
GRAND TOTAL	87	83	194	201	1061	890	1271	1391	140	152	569	424	1508	3996	2724	1673	1361	1627	3452	2517	1435	1494	1306	1172	2796	5121	4758	3689
Less duplicates	...	...	...	...	...	...	...	...	...	...	...	...	293	654	223	309	133	415	143	263	160	239	80	46	293	654	223	309
NET GROSS TOTAL	87	83	194	201	1061	890	1271	1391	140	152	569	424	1215	3342	2501	1364	1228	3212	3309	2254	1275	1255	1226	1126	2503	4467	4535	3380

*Excludes 229 duplicates this year.

† Excludes 84 duplicates this year.

**Counted as specials or graduates during this year.

The curricula included in the three colleges are: Agriculture; Agricultural Chemistry, Animal Husbandry, Botany and Bacteriology, Dairy Husbandry, Entomology, Forestry, General Horticulture, Poultry Husbandry, and Teacher Training; Liberal Arts; Art Education, General Home Economics, General Business, Hotel Administration, Music Education, Nursing, Occupational Therapy, Physical Education, Publicity, Secretarial, Social Science, Teacher Training, Pre-Medical; Technology; Architecture, Chemistry, Chemical Engineering, Civil Engineering, Electrical Engineering, and Mechanical Engineering.

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